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Resistance of *Paramecium* to Heat as Affected by Changes in Hydrogen-ion Concentration and in Inorganic Salt Balance in Surrounding Medium¹

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It is well known that organisms differ in resistance to increased temperature. It is also apparent that this difference extends to tissues and cells of single organisms.

Schereschewsky (1928) has reported the selective destruction of malignant tumor tissue in mice by means of a high-frequency electric field. Experiments recently performed in this laboratory by Kahler, Chalkley, and Voegtlin (1929) have shown that the destruction of cells in such a field is a thermal effect. N. Westermarck (1927) using diathermy was able to destroy malignant growths in rats without injury to surrounding normal tissue. The experiments of Lambert (1912) and of Rohdenberg and Prime (1921) prove that there exists a considerable difference in thermal death point between normal and tumor tissue.

Inasmuch as little is known as to the factors responsible for variation in cellular resistance to heat, and since knowledge of these factors may be of importance from a therapeutic standpoint, their determination constitutes a problem of considerable importance. The experiments here presented constitute an attempt to ascertain the effect of changes in hydrogen-ion concentration and in the inorganic salt balance of the surrounding medium on the resistance of cells to heat.

MATERIAL AND METHODS

During the experiments of Kahler, Chalkley, and Voegtlin referred to above, it was noted that *Paramecia* from different cultures exhibited slight but noticeable differences in their resistance to heat. Since material was abundant, since its unicellular character made rapid and complete environmental change a simple matter, and since changes

¹ The problem discussed here originated at the instigation of Prof. Carl Voegtlin, Chief of the Division of Pharmacology, and the author wishes to express his thanks to Professor Voegtlin for his advice and suggestions during the progress of the investigation.

in its normal motility would serve as an excellent index of injury, *Paramecium caudatum* was used in these experiments. The *Paramecia* utilized were the progeny of a single cell.² Culture was made in glass crystallizing dishes, holding about 200 cubic centimeters, in saline solution composed of NaCl 0.1 gram, CaCl₂ 0.006 gram, KCl 0.004 gram, NaHCO₃ 0.004 gram, H₂O 1,000 cubic centimeters. From 10 to 12 wheat grains were added to each culture. The hydrogen-ion concentration of the cultures was maintained at slight acidity, pH 6.8 to 6.2, by addition of food (wheat) when necessary. Closer control was found to be unnecessary.

The saline solutions in which the *Paramecia* were heated were (1) saline as used for culture and referred to hereafter as balanced saline;³ (2) the same but with the KCl omitted and CaCl₂ added in equimolar concentration; (3) the same but with the CaCl₂ omitted and KCl added in equimolar concentration; (4) the same but with KCl and CaCl₂ omitted and NaCl added in equimolar concentration. All of these were used at hydrogen-ion concentrations from pH 5.8 or 6.0 to 8.4 or 8.6, as the continued resistance of the organisms required. The pH of all solutions was controlled as follows: The solution was adjusted to a point slightly alkaline of the required value by omitting a portion of the NaCl and substituting NaHCO₃, the substitution being made so that the Na concentration was not changed. The exact pH wanted was then reached by addition of dilute HCl with aeration to remove CO₂ until the solution was stable at the requisite pH over a period of at least two hours. The error due to dilution with HCl was deemed negligible as it never exceeded 0.2 per cent by volume. The pH measurements were made with a LaMotte colorimetric set, and since with these slightly buffered solutions the indicator might introduce error, two indicators at least were used over the range. The indicators used were methyl red, brom thymol purple, thymol blue, phenol red, and cresol red. These allow simultaneous colorimetric measurements with two different indicators over the range used, with the exception of pH 8.6 where cresol red was used alone.

The experimental procedure was as follows: 10 cubic centimeters of culture fluid with suspended *Paramecia* was taken from a vigorous culture, the *Paramecia* thus obtained were washed three times with balanced saline at pH 6.8 by low speed centrifugation, and then left for 24 hours. From these *Paramecia*, lots of 25 each were moved with a paraffined capillary pipette and each lot was placed separately in a paraffined Petri dish. Then by means of a pipette superfluous saline was removed until the drop containing the *Paramecia* was reduced to approximately 0.02 cubic centimeter as checked by comparison with

² No conjugation was observed during the course of the investigation.

³ The term "balanced" is not used to imply a physiologically determined optimum condition. The solution used is simply one that was found empirically to be suitable for culture purposes.

measured drops of saline placed in the dish for reference. The dish was kept covered, except when under manipulation, to prevent evaporation or accidental contamination.

The lots of *Paramecia* were then transferred separately at timed intervals to paraffined test tubes each of which contained 5 cubic centimeters of the saline solution used. These tubes had all been previously brought to 40° C. in a water bath and were maintained at that temperature throughout the experiment. When exposure to heat had been completed, all tubes were removed simultaneously from the bath and were cooled in a second bath at 20° to 22° C. for 30 minutes. At the end of this time the tubes were emptied separately into small round-bottomed glass dishes and the surviving *Paramecia* in each lot were counted. Each individual as counted was removed from the dish with a pipette. A test of the accuracy of count was made by running through the procedure with the baths at room temperature. Ten such runs gave a maximum error, occurring once in the 10 runs, of 2 *Paramecia* or 8 per cent on individual counts.⁴

EFFECT OF CHANGES IN HYDROGEN-ION CONCENTRATION ON THE RESISTANCE OF *PARAMECIA* TO A TEMPERATURE OF 40° C. WHEN EXPOSURE IS MADE (a) IN BALANCED SALINE; (b) IN SALINE WITH POTASSIUM EXCESS; (c) IN SALINE WITH CALCIUM EXCESS; (d) IN SALINE WITH SODIUM EXCESS

(a) *In balanced saline.*—*Paramecia* were exposed to 40° C. in balanced saline at pH 6.0 to 8.6 in 0.2 unit steps, for 2, 4, 8, 12, and 16 minutes. Five counts were obtained of the number of protozoa surviving at the end of each time interval in each hydrogen-ion concentration used. These counts were averaged and the percentage of survivors was plotted as a function of time. This gave a series of curves which showed the rate of death at each pH. From this series of curves the time taken to kill 50 per cent at each pH was obtained by interpolation and plotted as a function of pH. Inasmuch as the making of this series of tests took several days, controls were established by obtaining, after all the counts had been completed for a given pH, a single count at pH 6.6 (the first pH value used) at each time interval used, for comparison with the previous counts. Similarly, when other solutions were used such control counts were always made using the balanced solution at pH 6.4, 6.6, or 7.0. This latitude in pH value was allowed, because owing to the difficulty of making the solutions it seemed impracticable to run all controls at exactly the same pH. Further, once the curve for the balanced solution was established, variation in the pH used for controls served to establish the curve in the balanced solution more firmly by providing additional check points.

The number of cells coagulated, i. e., in which the protoplasm was opaque and no rupture of the cell had occurred, was noted in all

⁴ A binocular dissecting microscope was used for making the counts and other observations.

counts. The figures obtained were averaged for each pH step and plotted as percentages of total deaths for each pH. Also a qualitative observation was made for each pH of the condition of the cell as to swelling. This observation was based on simultaneous ocular comparison of surviving *Paramecia* with normal individuals. The curves

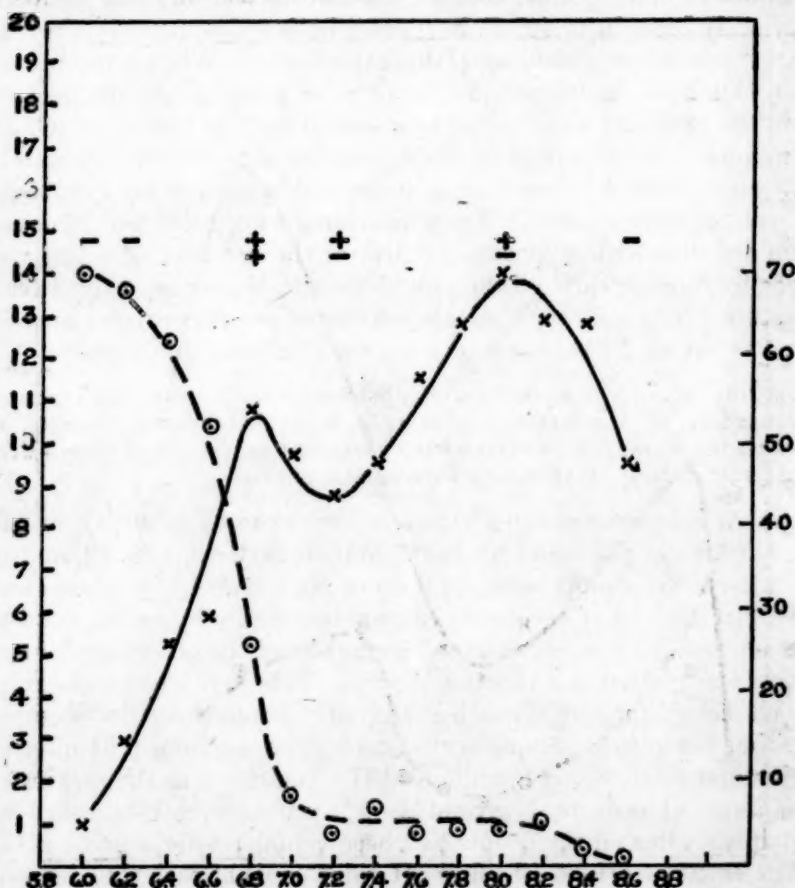


FIGURE 1.—Graph showing the variations in resistance to heat and swelling, and in the per cent of deaths due to coagulation of the cell, in *Paramecia* exposed to 40° C. in balanced saline at different hydrogen-ion concentrations. Abscissas represent pH; ordinate scale on left, time in minutes required to kill 50 per cent; scale on right per cent of deaths in which cells were unruptured and coagulated; continuous line, resistance; broken line, per cent of deaths by coagulation. Swelling indicated as follows: — none or shrinkage; ± slight to none; + marked; ‡ great

obtained are presented in Figure 1. From the curves it will be noted that the time of resistance rises from 1 minute at pH 6.0 to a maximum of 10.6 minutes at pH 6.8, drops to a minimum of 8.8 minutes at pH 7.2, rises again to a maximum of 14 minutes at pH 8.0, and then declines to 9.5 minutes at pH 8.6. The percentage of cells coagulated is 70 per cent at pH 6.0. It then drops gradually to about 5 per cent

at pH 7.2, remains relatively constant to pH 8.2, and then drops gradually to 2 per cent at pH 8.6.

Swelling apparently is negligible or absent at pH 6.0, but great at pH 6.8, and apparently less at pH 7.0 and on into the alkaline range. In the extreme alkaline range, from approximately pH 8.0 on, few fragments of cells were found. The membrane and cell contents

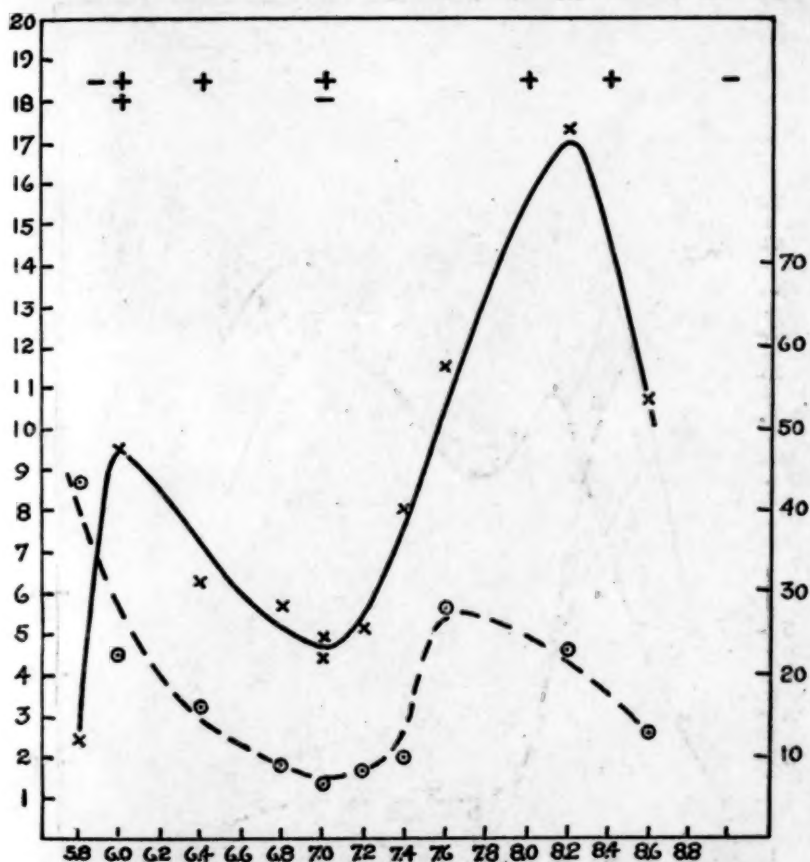


FIGURE 2.—Graph showing the variation in resistance to heat and swelling and in the per cent of deaths due to coagulation in *Paramecia* exposed to 40° C. in saline with potassium excess at different hydrogen-ion concentrations. Abscissas, pH; ordinate scale on the left, time in minutes to kill 50 per cent; scale on right, per cent of deaths in which cells were unruptured and coagulated; continuous line, resistance; broken line, per cent of deaths by coagulation. Swelling indicated as follows: — none or shrinkage; ± slight to none; + marked; ‡ great

rapidly dissolved and the degree of swelling as noted in surviving cells was, if anything, less than that at neutrality.

(b) *In saline with potassium excess.*—In this experiment the procedure was as previously outlined, except that exposure was made in a saline solution which contained in place of the CaCl_2 of the balanced saline an equimolar addition of KCl . The curves for variation of resistance and coagulation are presented in Figure 2.

From these it will be seen that the time of resistance increases from 2.4 minutes at pH 5.8 to 9.5 minutes at pH 6.0, declines gradually to about 4.8 minutes at pH 7.0, rises sharply to a maximum of 17.3 minutes at pH 8.2, then declines to 10.7 minutes at pH 8.6. As compared with the results of the previous experiment the maximum on the acid side is lower and occurs at a lower pH. The neutral mini-

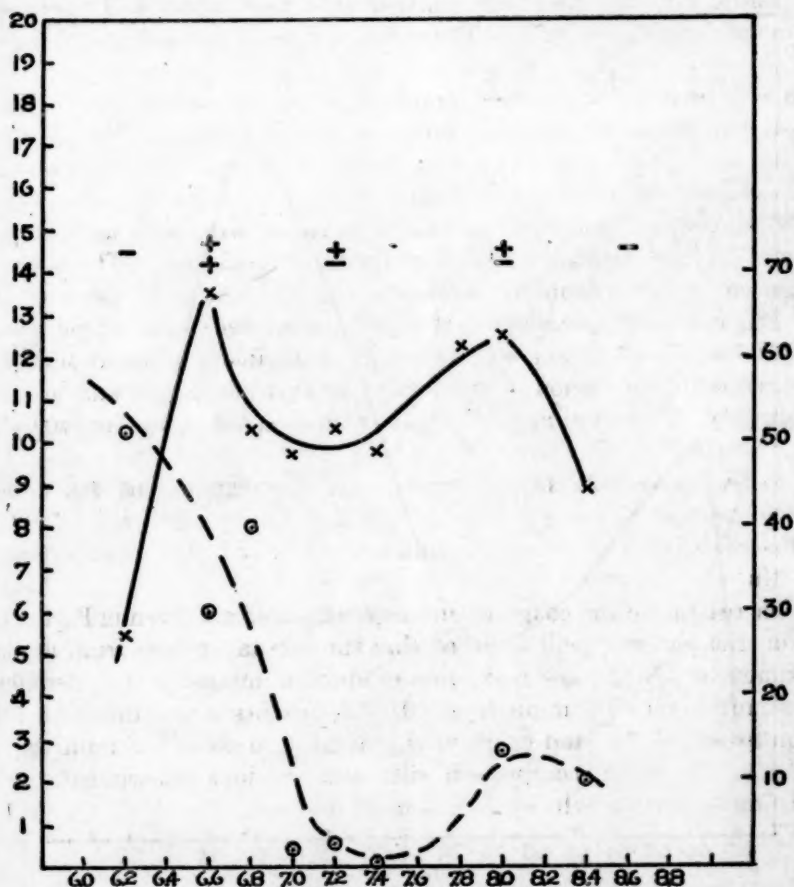


FIGURE 3.—Graph showing the variation in resistance to heat and swelling and in the per cent of deaths due to coagulation in *Paramecia* exposed to 40° C. in saline with calcium excess, at different hydrogen-ion concentrations. Abscissas, pH; ordinate scale on left, time in minutes to kill 50 per cent; scale on right, per cent of deaths in which cells were unruptured and coagulated; continuous line, resistance; broken line, per cent of deaths by coagulation. Swelling is indicated as follows: — none or shrinkage; ± none to slight; + marked; † great

um is lower and possibly shifted slightly toward the acid side. The alkaline maximum is much increased and is shifted slightly to the alkaline side.

The curve for the percentage of deaths showing coagulation starts at 45 per cent at pH 5.8, drops to about 8 per cent at pH 7.2, rises to about 28 per cent at pH 7.8, and then declines to 12 per cent at pH

8.6. The swelling was not noticeable at pH 5.8, very marked at pH 6.0, less at pH 6.8 and 7.0, more marked at pH 7.6, and negligible at pH 8.6. A comparison with the preceding experiment could not be made as it was impracticable to place the data on a quantitative basis.

(c) *In saline with calcium excess.*—This experiment was carried out as before, but the KCl was omitted from the saline and replaced by molar equivalent CaCl_2 . The curves for resistance and coagulation are presented in Figure 3.

It will be noted from these graphs that the resistance curve again shows two maxima; this time, however, the maxima occur at pH 6.6 on the acid side and at pH 8.0 on the alkaline side. The acid maximum time is the greatest, reaching 13.5 minutes, while the alkaline is 12.5 minutes. The neutral minimum is rather wider and apparently at pH 7.2, the resistance time here being 10.0 minutes. The coagulation curve drops from 52 per cent at pH 6.2 to about 2 per cent at pH 7.0, rises to 13 per cent at pH 8.0, and then declines to 10 per cent at pH 8.4. The swelling was, as before, negligible in extreme acidity, noticeable in the region of the acid resistance maximum and less at neutrality. The alkaline side, however, showed definitely less swelling than at pH 7.0.

(d) *In saline with sodium excess.*—In this experiment the same procedure was followed but both KCl and CaCl_2 were omitted and sufficient NaCl was added to replace the Ca and K concentrations by Na.

The resistance and coagulation curves obtained are given in Figure 4. From this figure it will be noted that the resistance rises from about 1 minute at pH 6.2 to a maximum of about 4 minutes at 6.6, declines to a minimum of 2 minutes at pH 7.2, reaches a maximum of 5.2 minutes at pH 7.6, and drops very gradually to about 4.5 minutes at pH 8.4. Thus, in comparison with the previous experiments, the resistance over the whole range is much lowered.

The percentage of coagulation drops from 35 per cent at pH 6.2 to 0 per cent at pH 7.4, and then remains at about 1 per cent or less for the remainder of the alkaline range covered. The swelling noted was none at extreme acidity and markedly less throughout than in the previous experiments. It appeared also that the character of the coagulation was somewhat different. It was not so definite and the cells appeared milky rather than densely white.

DISCUSSION

From the foregoing it appears that when *Paramecium* is exposed to a temperature of 40°C its resistance is affected by the hydrogen-ion concentration, and also by the salt balance of the surrounding medium.

If the region between pH 6.6 and pH 7.8 approximating the pH range of mammalian tissue is considered, it is apparent that with reference to the balanced solution used, an excess of potassium tends to decrease and an excess of calcium to increase resistance. It is also to be noted that in alkaline conditions the resistance is in general greater than in acid.

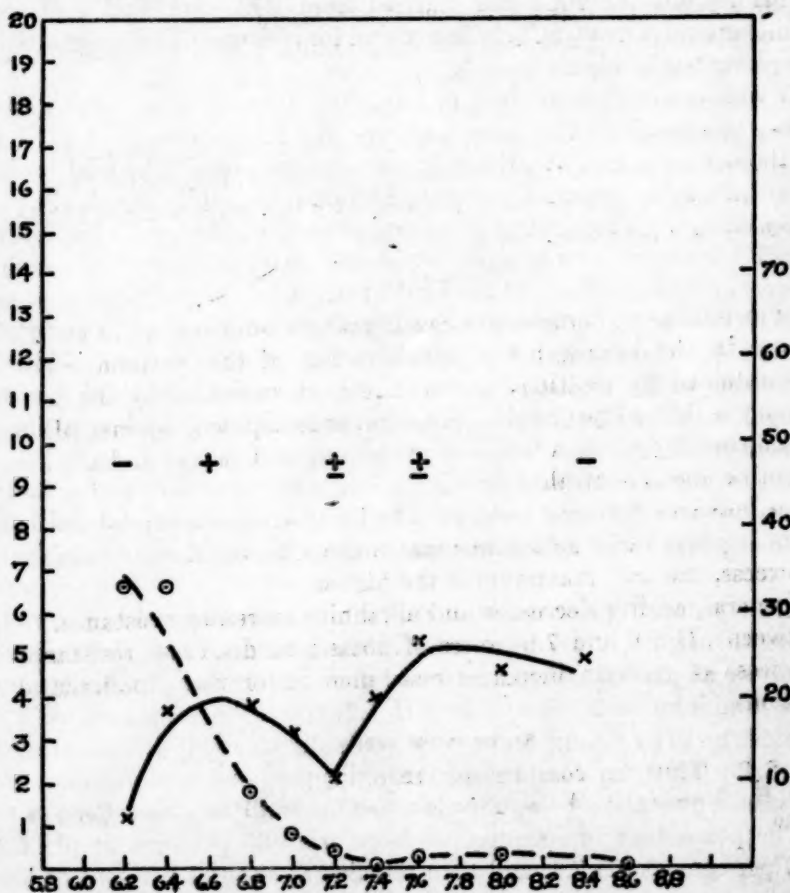


FIGURE 4.—Graph showing the variation in resistance to heat and swelling, and in the per cent of deaths due to coagulation in *Paramaecia* exposed to 40° C. in saline with sodium excess, at different hydrogen-ion concentrations. Abacissas, pH; ordinate scale on left, time in minutes to kill 50 per cent; scale on right, per cent of deaths in which cells were unruptured and coagulated; continuous line, resistance; broken line, per cent of deaths by coagulation. Swelling is indicated as follows: — none or shrinkage; ± none to slight; + marked; ‡ great

It is of interest to note that Beebe (1904) and Rohdenberg and Krehbiel (1922) find that in tumors there is in general a tendency toward relative excess of potassium, and also to note that there is reason to expect from the relatively high lactic acid production of such tissue that the fluids in actual contact with the cells will have a relatively low pH.

It would therefore seem probable (with the necessary reservations when results obtained for one type of cell are applied to another) that the low resistance to heat of tumor tissue as reported by Rohdenberg and Prime, Lambert and others (loc. cit.) is a correlate of the altered salt balance and acid base equilibrium that prevails in their immediate environment. Further research along this line might make possible a rationale of heat treatment of tumors.

From the curves presented for coagulation it will be noted that the type of death varies with the pH. Coagulative changes appear to be associated with death when the cell is in acid media, while swelling resulting in rupture of the cell membrane or dissolution of the cell with no swelling result when neutral or alkaline media, respectively, are used. It is proposed to deal with the implications of these differences in a separate paper.

SUMMARY

The resistance of *Paramecium caudatum* to a temperature of 40° C. varies with the hydrogen-ion concentration of the medium. The curve obtained by plotting the resistance, as measured by the time necessary to kill 50 per cent of the organisms exposed, against pH is bimodal, having maxima in the alkaline and acid ranges and a minimum at or about neutrality.

In a balanced solution, and in solutions containing an excess of sodium or potassium, the alkaline maximum is the higher. If calcium is in excess, the acid maximum is the higher.

In general, acidity decreases and alkalinity increases resistance.

Between pH 6.6 and 7.6 excess of potassium decreases resistance and excess of calcium increases resistance under the experimental conditions.

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DEATH RATES IN A GROUP OF INSURED PERSONS

Rates for Principal Causes of Death for December, 1929, and for the Years 1911 and 1919 to 1929

The accompanying tables are taken from the Statistical Bulletin for January, 1930, issued by the Metropolitan Life Insurance Co. They present the mortality experience of the industrial insurance department of the company for the principal causes of death for December, 1929, and a comparison of the rates for the years 1911 and

1919 to 1929, inclusive. The rates for 1929 are based on a strength of nearly 19,000,000 insured persons in the United States and Canada, comprising about one-seventh of the total and about one-third of the urban population of the two countries. While this is a more or less selected group and is largely urban, the death rate serves as an index of conditions in the general population. In recent years the general death rates in this group of persons have been consistently about 72 per cent of the rates for the registration area of the United States.

DECEMBER, 1929

The December death rate for these insured persons, 8.7 per 1,000, is stated to be the lowest recorded rate for this month. It is much lower than the rate for the corresponding month of the preceding year, 9.3 per 1,000, which reflected the rise due to the influenza epidemic. In addition to influenza and pneumonia, the following named causes of death showed improvement as compared with December of 1928: Whooping cough, diphtheria, tuberculosis, diabetes, respiratory diseases other than pneumonia, diarrhea and enteritis, and chronic nephritis. The death rate for typhoid fever was higher for December, 1929, than for the same month of 1928, as was also that for automobile fatalities.

Death rates (annual basis) per 100,000 for principal causes of death, December, 1929

[Industrial department, Metropolitan Life Insurance Co.]

Cause of death	Rate per 100,000 lives exposed ¹				
	Decem-ber, 1929 ²	Novem-ber, 1929 ²	Decem-ber, 1928 ²	Year	
				1929 ²	1928 ²
Total, all causes.....	869.6	790.7	926.0	916.2	916.6
Typhoid fever.....	2.1	2.4	1.7	2.3	2.7
Measles.....	1.8	.4	1.4	2.9	5.2
Scarlet fever.....	3.3	1.8	2.4	2.6	2.7
Whooping cough.....	3.3	3.7	4.8	5.6	5.7
Diphtheria.....	10.4	11.8	11.3	8.6	9.7
Influenza.....	20.5	13.1	48.8	41.1	24.8
Tuberculosis (all forms).....	74.1	73.2	75.8	85.2	90.1
Tuberculosis of respiratory system.....	66.2	65.4	68.3	75.2	78.8
Cancer.....	75.1	73.8	74.0	76.0	75.7
Diabetes mellitus.....	16.7	16.6	18.0	18.0	17.6
Cerebral hemorrhage.....	57.7	50.6	57.3	56.9	56.7
Organic diseases of heart.....	144.5	126.1	144.3	144.0	142.2
Pneumonia (all forms).....	87.9	64.1	103.9	86.9	89.3
Other respiratory diseases.....	10.8	9.2	19.5	11.4	12.4
Diarrhea and enteritis.....	12.7	15.0	14.0	20.4	24.0
Bright's disease (chronic nephritis).....	65.6	63.1	68.6	68.1	70.5
Puerperal state.....	11.4	11.1	9.9	13.3	13.9
Suicides.....	7.5	7.7	7.1	8.4	8.3
Homicides.....	6.9	5.3	6.9	6.4	6.7
Other external causes (excluding suicides and homi- cides).....	65.6	61.7	59.4	63.9	62.6
Traumatism by automobiles.....	21.3	23.9	20.5	20.6	18.4
All other causes.....	191.8	179.8	196.8	194.0	195.7

¹ All figures in this table include infants insured under 1 year of age.

² All 1929 death rates subject to slight correction, as they are based on provisional estimate of lives exposed to risk.

³ 1928 death rate is final figure.

YEAR 1929 AND COMPARISON WITH 1911 AND YEARS 1919-1928

The general death rate in this group of persons for the year 1929 was 8.7 per 1,000, practically the same as that for 1928 and for the month of December of 1929. This is approximately one-third less than the rate for 1911, namely, 12.5 per 1,000.

The year 1929 brought new low records for some diseases and conditions which are important from the standpoint of health work. The tuberculosis death rate was 85.6 per 100,000, the lowest rate recorded to date for this group. Typhoid fever, the scourge of urban populations 30 years ago, also registered a new low death rate, 2.3 per 100,000, as did the rate for puerperal causes. The mortality rates for measles and diphtheria also show declines to new minimum figures. The falling death rate for diarrhea and enteritis reflects improved standards of hygiene—better protection of food and water supplies and more intelligent care in the feeding of children. The rate for 1929, viz, 7.8 per 100,000, was approximately only one-fourth of the figure for 1911.

Among the unfavorable items reflecting health conditions for 1929 are influenza, which registered the highest death rate for any year since 1920, organic heart disease, cancer, and diabetes. Automobile fatalities also increased.

The influenza mortality brought the combined death rate for influenza and pneumonia higher than it has been since 1920, although the pneumonia rate alone was only a little higher than the average for the six preceding years; in fact only four years (1927, 1925, 1924, and 1921) registered a lower pneumonia death rate than that for 1929.

The death rate for heart disease was 146.1 per 100,000, as compared with 144.4 in 1928, the previous maximum rate for this group of persons. The rate for 1929 was 3 per cent higher than in 1911.

The death rate for cancer continued its slow but persistent increase to a new high point, 77.3 per 100,000, as compared with 77.0 in 1928. The 1929 rate for cancer was 13.7 per cent in excess of that for 1911.

Diabetes also registered a new high death rate in 1929, the rate being 18.3 per 100,000 as compared with 17.9 in 1928, and with 13.3 for 1911—an increase over the latter rate of nearly 38 per cent.

The rate for automobile fatalities was 20.9 per 100,000, the highest rate yet recorded for these persons, a rise of 12 per cent in one year and of 809 per cent since 1911. Approximately one-third of all accidental deaths among these 19,000,000 persons was in connection with the use of automobiles.

Acute and chronic alcoholism (not including deaths from methanol and denatured alcohol) caused 641 deaths in this group in 1929, as compared with 599 deaths in 1928. It is stated that among these

persons the alcoholism death rate during the past eight years has been six times as high in the United States as in Canada.

Deaths from cirrhosis of the liver numbered 1,208 in 1929, as compared with 1,217 in 1928. The rate, however, declined from 6.7 to 6.5 per 100,000.

Death rates for principal causes per 100,000 lives exposed, 1929 as compared with 1911 and years 1919 to 1928, ages 1 and over

Cause of death	1929 ¹	1928	1927	1926	1925	1924	1923	1922	1921	1920	1919	1911
All causes of death	874.3	869.3	842.2	885.7	846.3	848.0	807.1	882.9	870.6	980.4	1,063.0	1,253.0
Typhoid fever	2.3	2.7	4.7	4.2	4.6	4.4	5.2	5.7	6.7	6.7	7.3	22.8
Communicable diseases of childhood	16.3	19.0	19.7	25.9	19.7	26.2	33.1	29.8	37.9	43.1	31.5	58.9
Measles	2.4	4.2	3.4	8.0	2.5	5.7	8.4	4.3	3.2	8.5	3.5	11.4
Scarlet fever	2.6	2.6	3.0	3.4	3.4	4.3	4.4	4.9	7.0	6.0	3.9	13.1
Whooping cough	2.9	2.7	3.4	5.0	3.6	3.5	4.8	2.6	3.9	6.6	3.2	7.1
Diphtheria	8.5	9.5	10.2	9.5	10.2	12.7	15.5	18.0	23.8	22.1	20.9	27.3
Influenza and pneumonia	109.5	94.8	78.7	105.6	88.3	84.4	107.7	95.3	76.5	159.5	214.1	131.2
Influenza	36.9	22.0	15.7	27.4	19.4	14.2	30.1	21.7	8.7	53.5	96.9	15.9
Pneumonia	72.6	72.8	63.0	78.2	68.9	70.2	77.6	73.7	67.8	106.1	117.2	115.3 ²
Poliomyelitis	.6	1.2	2.0	.7	1.4	1.0	.7	.9	1.7	1.0	.6	1.6
Tuberculosis, all forms	85.6	90.6	93.8	99.5	98.2	104.4	116.5	114.2	117.4	137.9	156.5	224.6
Tuberculosis of respiratory system	76.2	80.0	83.0	87.9	87.0	93.4	100.6	103.6	105.6	124.0	141.6	203.0
Cancer, all forms	77.3	77.0	75.6	75.1	71.8	71.5	72.7	72.0	71.7	69.8	67.0	68.0
Diabetes mellitus	18.3	17.9	17.1	17.0	15.5	15.1	16.2	17.2	15.5	14.1	13.4	13.3
Alcoholism	3.4	3.3	3.5	3.7	3.0	2.9	3.0	2.1	.9	.6	1.4	4.0
Cerebral hemorrhage, apoplexy	57.7	57.6	56.0	56.5	54.4	61.1	61.9	62.9	62.1	61.3	59.8	64.2
Diseases of heart	146.1	144.4	134.7	136.4	128.7	125.2	128.7	126.7	117.4	117.0	113.9	141.8
Diarrhea and enteritis	7.8	8.7	9.1	10.5	12.3	11.3	11.1	10.8	14.2	15.8	16.9	28.0
Chronic nephritis (Bright's disease)	69.2	71.8	70.8	74.9	71.2	66.5	69.6	70.3	68.0	70.8	73.5	95.0
Puerperal state, total	13.5	14.2	15.7	15.6	16.9	17.2	17.9	19.0	19.8	23.0	20.0	19.8
Puerperal septicemia	5.0	5.0	6.4	6.0	6.6	6.6	6.9	7.4	8.5	8.6	6.7	8.8
Puerperal albuminuria and convulsions	3.1	3.1	3.2	3.6	3.8	4.3	4.2	4.7	4.9	5.0	4.8	4.7
Accidents of pregnancy	1.5	1.6	1.3	1.7	1.6	1.6	1.8	1.7	1.6	3.1	3.0	1.7
Total, external causes	78.9	77.8	79.8	77.2	78.3	76.9	77.8	71.8	72.0	72.0	94.2	97.9
Suicides	8.5	8.5	8.4	7.8	7.0	7.3	7.4	7.5	7.6	6.1	6.8	13.3
Homicides	6.5	6.8	7.4	7.2	7.4	7.2	7.3	6.3	6.7	5.8	6.9	7.2
Accidents, total	63.9	62.5	63.9	62.3	63.9	62.4	63.0	58.0	67.5	59.6	63.8	77.4
Accidental burns	4.8	5.3	5.3	6.1	6.1	6.4	6.3	6.1	6.6	8.1	8.1	8.8
Accidental drowning	6.4	7.1	6.8	6.3	6.5	7.3	6.7	7.3	6.2	6.7	8.6	10.2
Accidental traumatism by fall	8.9	8.0	8.5	7.9	8.1	7.7	8.4	7.3	7.1	7.3	8.0	13.2
Accidental traumatism by machines	1.6	1.2	1.4	1.4	1.3	1.3	1.7	1.6	1.0	1.7	1.6	1.8
Railroad accidents	3.8	3.9	4.1	4.2	4.0	4.0	4.9	4.1	3.9	5.2	5.7	9.3
Automobile accidents	20.9	18.7	18.7	17.0	16.8	15.9	15.4	13.6	12.2	11.1	10.7	2.3
All other accidents	17.4	18.3	19.1	19.4	21.2	19.7	19.5	18.0	18.5	19.5	21.2	31.6
War deaths	(?)	(?)	(?)	(?)	(?)	(?)	(?)	1	1	5	16.6	
Other diseases and conditions	187.7	188.3	181.0	183.6	183.4	180.9	181.7	185.1	190.5	197.8	193.5	283.5

¹ All 1929 death rates subject to slight correction, as they are based on a provisional estimate of lives exposed to risk.

² Death rate less than 0.05 per 100,000.

RECENT STATE MORTALITY STATISTICS ^a

For the information of public health officials and others interested, mortality rates for the latest month for which records are available are given for various States in the following tables. These rates are computed from current and generally preliminary reports furnished by State departments of health. Because of (a) some lack of uniformity in the method of classifying deaths according to cause, (b) some delayed death certificates, and (c) various other reasons, these

^a From the Office of Statistical Investigations, U. S. Public Health Service.

preliminary rates can not be expected to agree in all instances with final rates published by the Bureau of the Census; the final figures are based on a complete review and retabulation of the individual death certificates from every State. The preliminary rates given in the following tables are intended to serve as a current index of mortality until final figures are issued by the Bureau of the Census.

For purposes of comparison, the mortality records for a few preceding years are given, the rates being those for the month corresponding to the latest month for which the 1929 rate is available. These comparative rates for preceding years are from the same source as the current reports. Although final figures are often available for these earlier years, the preliminary figures are retained as being more comparable with current preliminary rates.

Monthly State mortality statistics

All rates are on an annual basis, and, with the exception of mortality from all causes, infant mortality, and congenital malformations and diseases of early infancy, are per 100,000 population]

ALL CAUSES: ANNUAL RATE PER 1,000 POPULATION

	1929										Corresponding month for—			
	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.		1928	1927	1926	1925
Alabama.....	11.2	11.9	11.8	11.1	11.0	10.8	11.0	10.9	13.2	13.4	13.3	11.6	13.5	
White.....	9.0	9.2	9.2	8.7	8.5	8.4	8.8	8.5	10.5	11.1	11.3	9.9		
Colored.....	15.3	16.9	16.8	15.7	15.7	15.5	15.1	15.2	18.4	17.5	17.0	15.1		
Arizona.....	16.1	17.6	17.9	13.2	11.3	11.8	11.6	13.7	14.9	20.0				
California.....	15.2	13.8	14.2	13.1	12.8	12.4	13.1	14.3		16.6				
Connecticut.....	10.4	11.1	9.0	9.3	8.9	9.5	10.2	10.0		10.2	9.4	10.4	11.6	
Florida.....							11.8	12.2						
White.....							9.5	10.7						
Colored.....							16.9	15.4						
Georgia.....	9.6	9.1	11.3	10.3	10.0	10.4	10.5	9.9	12.1					
Hawaii Territory.....	14.6	14.5	12.7	12.1	9.7	10.8	10.3	11.1	10.7	12.6	11.9			
Indiana.....	12.4	12.2	11.0	10.5	10.5	10.9	10.9	11.0		11.2	11.4	11.5	11.6	
Iowa.....	10.7	10.4		9.7	8.6	9.7	9.5	13.4	10.8	14.4				
Kansas.....	11.0	9.8	9.6	9.2	9.7	8.7	9.0	10.2		10.8				
Louisiana.....	11.5	11.2	11.6	11.1	10.8	11.1	11.8	12.4		11.9				
White.....	8.8	8.2	8.2	8.3	8.4	9.0	9.1	0.7		9.4				
Colored.....	16.5	16.7	16.9	16.0	15.1	15.1	16.8	17.3		16.6				
Maryland.....				11.7	11.9	11.1	12.2	12.5	14.0					
White.....				10.4	10.8	9.9	11.0	11.6	12.6					
Colored.....				18.4	17.5	16.8	18.2	17.3	21.7					
Michigan.....	12.7	13.2	11.7	10.8	10.4	11.2	10.9	10.7	11.9	16.2				
Minnesota.....	9.3	9.2	8.6	8.3	8.0	7.9	8.1	8.6	9.7	12.5				
Mississippi.....	11.8	11.1	12.6	11.7	10.7	10.0	11.9			10.7				
White.....	8.8	8.4	9.0	8.6	8.4	8.0	9.8			8.1				
Colored.....	14.6	13.7	15.9	14.5	12.7	11.7	13.8			13.2				
Montana.....						9.0								
Nebraska.....	9.7	9.6	8.4	8.2	7.7	8.4				8.0				
New Jersey.....	12.1	11.3	10.5	10.4	9.0	10.3	10.8	11.2	12.7	13.2	11.5	13.1	12.3	
New York ¹	13.5	13.0	16.0	11.1	11.3	11.4	12.2	12.2		12.4	12.4	12.6	14.5	
North Carolina.....	11.7	11.9							10.7	17.5				
Pennsylvania.....	11.7	11.2	9.8	9.6	9.2	10.0	10.6	10.7		11.5	11.5	11.7	12.0	
South Dakota.....	8.0	9.0	7.1	6.8	8.3	7.3	7.2	6.3	10.1	14.1				
Tennessee.....	11.3	10.7	10.9	11.9	10.9	10.8	11.0	11.4	14.2	16.1	13.6	12.7		
White.....	9.6	9.1	9.3	10.1	9.4	9.2	9.4	9.9	12.9					
Colored.....	19.8	18.2	18.9	20.9	18.2	18.4	18.4	18.7	20.5					
Virginia.....	10.3	9.8	9.7	10.2	8.9	9.0	9.6	10.2	12.1	13.1				
White.....	8.8	7.8	8.0	8.8	7.4	7.4	8.3	9.0	10.2	11.5				
Colored.....	14.4	15.1	14.4	14.0	13.0	13.2	12.9	13.4	17.0	17.3				
Wisconsin.....	11.1	10.6	10.0		8.9	9.2	9.4	9.4	11.0					

¹ Exclusive of New York City.

Monthly State mortality statistics—Continued

INFANT MORTALITY, PER 1,000 LIVE BIRTHS

	1929										Corresponding month for—			
	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.		1928	1927	1926	1925
Alabama.....	69	78	73	70	60	61	67	62	61		72	75	53	-----
White.....	62	66	69	67	52	54	59	51	48		60	65	45	-----
Colored.....	80	99	81	75	75	75	83	84	84		95	92	68	-----
Arizona.....	115	139	185	112	129	142	110	95	97		148	-----	-----	-----
California.....	69	65	63	62	56	56	56	58	-----		69	-----	-----	-----
Connecticut.....	61	79	50	44	53	74	72	71	-----		43	63	60	73
Florida.....	-----	-----	-----	-----	-----	-----	65	58	-----		-----	-----	-----	-----
White.....	-----	-----	-----	-----	-----	-----	44	49	-----		-----	-----	-----	-----
Colored.....	-----	-----	-----	-----	-----	-----	105	70	-----		-----	-----	-----	-----
Georgia.....	-----	-----	-----	-----	-----	63	73	68	78		-----	-----	-----	-----
Hawaii Territory.....	117	100	108	89	158	81	83	90	94		113	-----	-----	-----
Indiana.....	60	63	48	32	64	74	62	55	66		81	61	73	70
Iowa.....	61	48	-----	44	43	40	45	49	49		44	-----	-----	-----
Kansas.....	69	53	49	47	49	47	46	49	-----		56	-----	-----	-----
Louisiana.....	86	91	95	69	64	62	71	68	-----		68	-----	-----	-----
Maryland.....	-----	-----	-----	70	82	78	80	66	70		-----	-----	-----	-----
White.....	-----	-----	-----	69	75	68	66	57	56		-----	-----	-----	-----
Colored.....	-----	-----	-----	105	113	111	134	99	120		-----	-----	-----	-----
Michigan.....	67	69	57	53	51	68	65	53	59		86	-----	-----	-----
Minnesota.....	51	49	36	39	40	42	40	38	44		56	-----	-----	-----
Montana.....	-----	-----	-----	-----	-----	55	-----	-----	-----		-----	-----	-----	-----
Nebraska.....	50	48	48	36	37	49	-----	-----	-----		50	-----	-----	-----
New Jersey.....	70	59	43	46	56	59	59	54	-----		-----	-----	-----	-----
New York ¹	70	64	52	45	47	58	64	58	-----		63	64	76	69
Pennsylvania.....	69	65	51	49	56	74	68	60	-----		65	64	72	71
South Dakota.....	63	63	41	50	39	43	40	51	44		59	-----	-----	-----
Tennessee.....	61	85	63	53	71	63	70	73	70		-----	-----	-----	-----
Virginia.....	61	-----	67	75	61	65	62	65	68		72	-----	-----	-----
Wisconsin.....	89	60	51	50	43	56	54	50	56		72	-----	-----	-----

CONGENITAL MALFORMATIONS AND DISEASES OF EARLY INFANCY (159-163), PER 1,000 LIVE BIRTHS

Alabama.....	27	34	29	27	30	31	21	26	24	23	28	25	-----	-----
White.....	29	34	34	30	30	29	33	26	23	26	27	23	-----	-----
Colored.....	24	34	20	21	31	35	29	26	28	18	29	28	-----	-----
Arizona.....	30	35	35	34	32	23	26	46	06	37	-----	-----	-----	-----
California.....	33	32	30	27	26	30	31	31	-----	31	-----	-----	-----	-----
Florida.....	-----	-----	-----	-----	-----	-----	25	27	-----	-----	-----	-----	-----	-----
White.....	-----	-----	-----	-----	-----	-----	38	34	-----	-----	-----	-----	-----	-----
Colored.....	-----	-----	-----	-----	-----	-----	28	29	25	35	-----	-----	-----	-----
Iowa.....	35	31	-----	30	30	27	28	29	25	34	-----	-----	-----	-----
Kansas.....	39	33	36	31	30	30	29	30	-----	25	-----	-----	-----	-----
Louisiana.....	31	32	34	28	30	28	29	30	-----	-----	-----	-----	-----	-----
Maryland.....	-----	-----	-----	36	34	35	38	32	30	-----	-----	-----	-----	-----
White.....	-----	-----	-----	36	37	31	36	29	27	-----	-----	-----	-----	-----
Colored.....	-----	-----	-----	36	27	49	46	39	38	-----	-----	-----	-----	-----
Michigan.....	35	38	33	36	33	33	36	40	35	39	-----	-----	-----	-----
Minnesota.....	33	32	26	28	29	30	29	24	28	21	-----	-----	-----	-----
Nebraska.....	31	29	33	22	26	35	-----	-----	-----	29	-----	-----	-----	-----
New York ¹	38	41	35	45	35	33	38	37	-----	39	39	44	39	-----
Pennsylvania.....	34	35	32	30	29	32	33	30	-----	34	35	-----	-----	-----
South Dakota.....	32	29	21	35	16	26	31	31	22	28	-----	-----	-----	-----
Tennessee.....	20	26	28	29	25	25	26	27	23	-----	-----	-----	-----	-----

TYPHOID FEVER (1)

Alabama.....	5.7	5.5	11.4	12.4	17.4	11.3	6.9	8.0	3.2	6.0	8.9	9.0	15.3	-----
Arizona.....	12.8	32.3	25.7	12.4	5.0	15.4	14.9	7.7	2.5	(?)	-----	-----	-----	-----
California.....	1.6	1.6	1.9	3.1	2.6	3.5	2.3	1.9	-----	1.1	-----	-----	-----	-----
Connecticut.....	-----	1.4	1.5	1.4	1.4	-----	1.4	1.5	-----	(?)	(?)	1.6	2.4	-----
Florida.....	-----	-----	-----	-----	-----	-----	5.0	3.4	-----	-----	-----	-----	-----	-----
Georgia.....	5.3	7.4	12.2	20.2	19.9	20.9	14.3	8.4	9.9	-----	-----	-----	-----	-----
Hawaii Territory.....	3.5	3.4	3.5	6.6	-----	6.8	3.3	3.4	-----	-----	-----	-----	-----	-----
Illinois.....	.9	.5	1.6	2.2	1.9	2.5	2.2	-----	1.0	2.1	1.6	2.2	4.6	-----
Indiana.....	3.4	1.5	2.3	7.0	5.6	5.0	5.6	6.1	3.0	3.0	3.7	5.3	-----	-----
Iowa.....	2.6	1.0	-----	9.7	3.4	2.5	2.4	7.3	5.3	3.4	-----	-----	-----	-----
Kansas.....	1.3	1.3	5.3	3.2	7.1	2.0	3.2	5.3	-----	2.0	-----	-----	-----	-----
Louisiana.....	11.2	14.5	10.0	17.5	15.9	18.1	13.9	13.7	-----	12.5	-----	-----	-----	-----
Maryland.....	-----	-----	-----	5.1	8.0	7.5	5.8	5.3	2.9	-----	-----	-----	-----	-----

¹ Exclusive of New York City.² No deaths.

Monthly State mortality statistics—Continued

TYPHOID FEVER (1)—continued

	1929										Corresponding month for—			
	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.		1928	1927	1926	1925
Michigan	1.9	2.1	1.9	1.5	2.8	3.5	2.8	1.9	0.5	1.3	1.3	-----	-----	-----
Minnesota	.5	.4	1.3	2.6	1.3	1.8	.4	.9	(¹)	1.4	-----	-----	-----	-----
Mississippi	4.1	7.2	15.6	19.7	10.1	15.6	6.6	-----	-----	12.5	-----	-----	-----	-----
Montana	0	2.5	.9	1.7	2.5	5.2	-----	-----	-----	3.5	-----	-----	-----	-----
Nebraska	.3	1.9	.3	1.9	1.8	2.2	2.8	1.9	1.8	2.1	2.0	4.3	3.5	-----
New Jersey	.6	.6	2.1	2.3	2.1	3.2	2.5	2.4	-----	7.2	-----	-----	-----	-----
New York ¹	2.1	3.2	-----	-----	-----	-----	-----	-----	4.0	2.1	3.4	4.9	-----	-----
North Carolina	.4	1.8	2.3	2.5	2.5	3.3	2.3	2.5	-----	15.0	21.8	-----	-----	-----
Pennsylvania	3.9	10.1	22.8	25.3	27.8	29.2	15.8	9.8	-----	6.7	-----	-----	-----	-----
South Carolina	-----	-----	3.5	1.7	3.3	12.1	3.3	6.9	-----	8.9	-----	-----	-----	-----
South Dakota	2.9	5.2	7.3	19.3	31.1	25.3	16.5	17.5	12.7	2.3	-----	-----	-----	-----
Tennessee	.9	5.9	3.8	7.8	5.9	4.3	7.3	3.8	5.0	.8	-----	-----	-----	-----
Virginia	1.2	.4	.8	-----	2.4	2.1	2.0	1.7	1.2	-----	-----	-----	-----	-----
Wisconsin	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

MEASLES (7)

Alabama	5.7	3.2	2.8	1.4	0.5	0.5	0.5	0.5	0.9	3.2	2.8	-----	-----	-----
California	-----	.5	-----	.7	.5	-----	.3	-----	-----	.7	(¹)	-----	3.2	-----
Connecticut	7.4	6.5	3.7	-----	-----	.7	-----	(¹)	(¹)	-----	-----	-----	-----	-----
Florida	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Georgia	3.0	2.2	-----	-----	.4	.4	-----	(¹)	(¹)	(¹)	(¹)	-----	-----	-----
Hawaii Territory	16.9	17.4	13.2	3.3	-----	-----	-----	(¹)	(¹)	1.1	.5	2.7	1.9	-----
Illinois	10.1	9.7	6.9	2.1	.8	.2	.2	(¹)	.5	1.1	(¹)	1.1	-----	-----
Indiana	13.4	7.0	5.0	.4	.4	-----	.7	(¹)	.4	-----	-----	-----	-----	-----
Iowa	2.5	1.9	-----	.5	-----	1.0	1.5	3.3	2.4	-----	-----	-----	-----	-----
Kansas	5.3	7.1	7.3	1.3	1.3	1.3	.6	.7	-----	.6	-----	-----	-----	-----
Louisiana	4.4	4.2	0	2.4	0	4.4	.6	(¹)	-----	-----	-----	-----	-----	-----
Maryland	-----	-----	-----	.7	1.5	-----	-----	-----	.7	-----	-----	-----	-----	-----
Michigan	7.7	9.2	5.0	2.3	.3	-----	.8	2.4	2.8	1.3	-----	-----	-----	-----
Minnesota	5.8	4.3	4.9	1.3	-----	.0	.4	1.8	3.0	1.3	-----	-----	-----	-----
Mississippi	7.5	5.3	2.0	2.0	.7	0	-----	-----	-----	2.6	-----	-----	-----	-----
Nebraska	0	4.2	7.8	1.7	1.7	1.7	-----	-----	-----	(¹)	-----	-----	-----	-----
New Jersey	2.2	.6	1.0	.3	.3	0	0	.3	.0	-----	-----	-----	-----	-----
New York ¹	3.6	4.1	2.1	1.0	1.4	.6	.6	.9	-----	1.3	.7	1.8	3.5	-----
North Carolina	.8	.8	-----	-----	-----	-----	-----	(¹)	(¹)	2.0	-----	-----	-----	-----
Pennsylvania	6.0	5.9	3.8	1.8	1.0	.7	.7	1.4	-----	2.3	1.3	2.3	-----	-----
South Carolina	-----	.6	-----	-----	-----	-----	(¹)	(¹)	1.7	.7	4.6	-----	-----	-----
South Dakota	6.9	1.7	1.7	3.3	-----	-----	(¹)	(¹)	1.7	-----	-----	-----	-----	-----
Tennessee	1.0	.5	.5	1.5	-----	.5	.9	2.4	3.3	.6	-----	-----	-----	-----
Virginia	2.4	3.7	.9	.5	.9	-----	1.4	-----	-----	2.7	-----	-----	-----	-----
Wisconsin	7.0	6.0	4.5	2.0	-----	.8	.8	1.2	2.8	.4	-----	-----	-----	-----

SCARLET FEVER (8)

Alabama	-----	-----	0.9	1.4	0.9	0.5	0.5	2.4	3.2	-----	1.4	1.9	1.9	-----
Arizona	20.5	2.5	(¹)	(¹)	(¹)	(¹)	(¹)	2.6	2.5	2.5	-----	-----	-----	-----
California	3.7	4.4	2.9	.8	.5	.8	.8	1.3	-----	1.9	-----	-----	-----	-----
Connecticut	.7	.7	.7	1.4	1.4	-----	.7	(¹)	(¹)	(¹)	(¹)	2.3	3.2	-----
Florida	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Georgia	1.1	.7	-----	-----	1.5	2.3	1.5	1.5	2.6	-----	-----	-----	-----	-----
Illinois	6.2	5.3	3.7	3.8	.5	.8	3.0	-----	5.7	4.5	2.7	1.4	3.2	-----
Indiana	3.8	4.4	3.4	1.5	1.9	.8	1.1	1.9	3.3	2.6	1.9	3.4	-----	-----
Iowa	3.5	1.9	-----	1.5	1.5	1.0	1.9	4.0	1.9	7.3	-----	-----	-----	-----
Kansas	6.0	2.6	2.7	-----	-----	-----	1.3	6.6	-----	5.3	-----	-----	-----	-----
Louisiana	.6	1.8	0	0	.6	0	1.2	1.2	-----	3.1	-----	-----	-----	-----
Maryland	-----	-----	-----	1.5	-----	0	2.2	2.3	2.9	-----	-----	-----	-----	-----
Michigan	7.7	3.5	2.7	1.5	.5	.8	1.5	2.7	2.3	5.9	-----	-----	-----	-----
Minnesota	2.7	2.2	-----	1.3	1.7	1.3	1.3	2.2	3.9	1.7	-----	-----	-----	-----
Montana	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Nebraska	9.5	6.7	1.7	1.7	0	1.7	-----	-----	-----	(¹)	-----	-----	-----	-----
New Jersey	2.2	1.5	1.6	.3	-----	1.0	.6	1.3	.9	-----	-----	-----	-----	-----
New York ¹	2.6	2.3	1.1	.8	1.4	1.1	1.0	1.1	-----	2.8	1.3	.7	1.5	-----
North Carolina	2.9	2.4	-----	-----	-----	-----	-----	-----	1.6	1.6	-----	-----	-----	-----
Pennsylvania	3.3	3.1	2.1	1.4	1.0	1.2	1.1	1.5	-----	2.0	3.2	2.8	-----	-----
South Carolina	-----	1.3	.7	1.3	-----	.7	(¹)	3.9	-----	.7	-----	-----	-----	-----
South Dakota	-----	6.7	5.2	-----	1.7	-----	1.7	(¹)	3.3	3.3	-----	-----	-----	-----
Tennessee	2.9	2.8	-----	.9	.5	1.5	2.8	3.4	5.2	2.8	-----	-----	-----	-----
Virginia	-----	.5	.5	-----	.5	.5	3.7	1.9	5.5	2.3	-----	-----	-----	-----
Wisconsin	5.4	.4	2.9	2.0	1.2	.8	2.4	.4	4.4	3.6	-----	-----	-----	-----

¹ Exclusive of New York City.² No deaths.

Monthly State mortality statistics—Continued

WHOOPIING COUGH (9)

	1929										Corresponding month for—			
	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1928	1927	1926	1925	
Alabama.....	10.4	10.1	10.4	17.4	11.9	6.6	4.6	7.1	6.4	6.9	5.2	3.8	6.7	
Arizona.....	8.3	12.4	20.5	5.0	5.0	5.1	(2)	2.6	(2)	17.4	—	—	—	
California.....	8.3	9.0	10.2	7.8	6.7	3.5	2.8	2.7	—	6.4	—	—	—	
Connecticut.....	.7	2.2	3.0	2.2	2.2	1.5	.7	2.2	—	2.3	5.4	3.9	8.7	
Florida.....	—	—	—	—	—	—	3.3	1.7	—	—	—	—	—	
Georgia.....	4.9	4.4	13.7	15.8	13.6	12.9	9.6	4.9	9.2	—	—	—	—	
Hawaii Territory.....	83.7	67.5	38.3	16.4	6.6	13.6	9.9	—	—	20.2	(7)	—	—	
Illinois.....	3.5	4.3	3.4	3.2	5.9	5.1	2.4	—	2.5	3.7	3.3	3.7	1.1	
Indiana.....	6.5	7.0	6.5	4.8	6.7	4.2	3.3	3.4	3.3	5.6	3.7	9.1	—	
Iowa.....	8.0	4.8	—	4.8	4.8	5.0	—	3.3	2.4	5.3	—	—	—	
Kansas.....	4.6	2.6	2.7	4.5	3.8	2.0	3.2	4.0	—	3.3	—	—	—	
Louisiana.....	7.5	6.0	6.9	11.5	4.8	4.4	3.0	5.6	—	5.6	—	—	—	
Maryland.....	—	—	—	7.3	11.7	5.3	6.6	7.5	8.7	—	—	—	—	
Michigan.....	7.2	8.2	5.6	3.3	7.4	6.6	4.6	2.1	2.8	10.0	—	—	—	
Minnesota.....	4.9	5.2	.9	4.8	3.0	4.0	2.6	1.8	3.0	6.5	—	—	—	
Mississippi.....	14.3	10.5	17.7	12.5	11.8	8.2	8.5	—	—	3.9	—	—	—	
Montana.....	—	—	—	—	—	—	4.4	—	—	—	—	—	—	
Nebraska.....	1.7	6.7	3.5	5.0	3.3	3.5	—	—	—	1.7	—	—	—	
New Jersey.....	5.7	4.0	2.2	2.8	4.9	4.1	4.0	1.6	2.5	—	—	—	—	
New York ¹	4.3	3.3	2.1	1.3	4.1	2.6	3.7	2.4	—	2.8	3.3	4.7	2.8	
North Carolina.....	7.5	9.6	—	—	—	—	—	8.0	—	4.4	—	—	—	
Pennsylvania.....	4.8	4.3	4.3	5.0	6.0	5.0	3.9	3.2	—	7.4	2.0	6.1	—	
South Carolina.....	13.1	17.1	22.8	18.3	15.8	9.1	8.8	9.1	—	2.6	10.6	—	—	
South Dakota.....	1.7	11.7	6.9	1.7	1.7	1.7	3.3	5.2	1.7	—	—	—	—	
Tennessee.....	6.3	7.5	6.3	13.7	10.0	7.8	5.6	6.3	6.6	5.2	—	—	—	
Virginia.....	6.1	8.2	9.9	12.8	16.9	9.4	7.3	5.2	11.4	6.4	—	—	—	
Wisconsin.....	6.6	5.6	4.9	4.4	4.0	2.1	1.6	3.3	3.6	3.2	—	—	—	

DIPHTHERIA (10)

Alabama	2.8	2.3	1.4	2.8	7.3	16.6	23.3	17.5	13.3	17.9	19.7	22.7	12.9
Arizona	7.7	(7)	2.6	(9)	(9)	5.1	9.9	20.5	14.9	12.4			
California	3.7	3.4	4.3	1.8	3.1	2.9	4.7	7.7		5.1			
Connecticut	3.7	4.3	3.7	2.9	1.4	4.4	7.2	4.4		6.0	1.5	1.6	8.0
Florida							4.2	6.9					
Georgia	1.9	22.4	20.9	11.4	5.2	9.9	11.8	7.2	9.6				
Hawaii Territory	20.9	6.7	10.5	6.6	3.3	13.6	6.6	3.4	9.9	23.6	18.1		
Illinois	11.6	12.6	11.1	9.1	7.0	4.6	11.5		14.8	15.0	15.8	7.0	8.3
Indiana	5.0	3.3	1.5	2.2	3.0	4.2	7.4	8.8	6.7	10.0	11.6	10.9	
Iowa	2.0	1.5		2.4	1.0	1.5	1.5	2.0	2.9	4.4			
Kansas	4.6	1.3	1.3	.6	.6	4.0	7.1	10.6		5.3			
Louisiana	2.5	5.4	3.1	3.6	6.0	5.0	11.5	14.4		14.4			
Maryland				1.5	5.1	1.5	3.6	6.8	3.6				
Michigan	10.3	11.3	13.0	9.8	6.9	8.5	13.3	9.3	14.6	12.8			
Minnesota	2.2	2.6	.9	2.6	1.7	1.8	1.3	4.0	4.3	5.2			
Mississippi	2.0		1.4	1.3	5.3	6.8	25.6			11.8			
Montana						8.9							
Nebraska	4.3	.8	5.2	.8	0	1.7				1.7			
New Jersey	10.5	10.5	9.9	8.9	5.5	6.7	10.8	15.3	16.9				
New York ¹	2.4	3.1	4.1	2.1	2.7	1.7	4.1	4.9		4.6	6.0	5.4	8.5
North Carolina	4.1	1.6							31.3	26.4			
Pennsylvania	6.8	5.7	5.7	4.4	2.9	6.0	7.4	8.1		10.9	12.6	8.4	
South Carolina	2.0	4.4	3.3	1.9	10.1	10.4	16.4	13.1		22.2	19.8		
South Dakota	3.5	3.7				1.7		3.5	6.7	1.7			
Tennessee	2.9	3.3	2.9	1.4	6.1	8.8	20.7	20.4	16.5	18.8			
Virginia	1.9	1.4	1.4	2.7	3.2	10.4	16.9	13.2	16.0	12.4			
Wisconsin	.8	4.4	2.5	1.6	2.0	2.1	3.6	3.3	4.4	4.8			

¹ Exclusive of New York City.² No deaths.

Monthly State mortality statistics—Continued

INFLUENZA (11)

	1929									Corresponding month for—			
	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1928	1927	1926	1925
Alabama.....	53.2	43.6	19.5	9.6	9.2	9.9	10.1	21.8	58.1	164.7	52.1	29.3	49.6
White.....	47.1	32.2	18.1	8.4	6.3	10.1	9.8	16.7	50.5	152.8	43.7	24.4	—
Colored.....	64.0	77.8	21.8	11.9	14.5	9.5	10.5	31.3	72.5	185.9	67.1	38.1	—
Arizona.....	35.9	27.3	15.4	9.9	2.5	7.7	5.0	5.1	12.4	342.8	—	—	—
California.....	23.5	13.4	7.5	5.2	4.1	6.9	9.3	15.0	—	127.1	—	—	—
Connecticut.....	21.5	9.3	3.7	2.9	2.2	5.2	12.2	11.9	—	9.0	10.7	11.7	22.3
Florida.....	—	—	—	—	—	—	16.7	23.3	—	—	—	—	—
White.....	—	—	—	—	—	—	12.1	13.8	—	—	—	—	—
Colored.....	—	—	—	—	—	—	26.7	44.1	—	—	—	—	—
Georgia.....	74.5	22.4	20.9	11.4	5.2	9.1	19.5	22.4	44.5	—	—	—	—
Hawaii Territory.....	38.3	27.0	20.9	19.7	13.2	6.8	3.3	6.8	3.3	30.4	14.5	—	—
Illinois.....	20.5	15.0	7.1	3.5	3.3	4.8	8.4	—	18.0	—	—	—	—
Indiana.....	36.4	21.1	13.0	11.1	8.5	10.3	18.9	18.8	41.2	267.7	23.9	36.2	36.5
Iowa.....	28.1	28.6	—	0.7	5.3	8.0	9.2	18.6	33.9	256.5	—	—	—
Kansas.....	46.4	29.5	21.2	12.2	11.5	9.9	10.9	17.9	—	29.2	—	—	—
Louisiana.....	41.8	19.9	11.8	11.5	11.5	15.6	18.7	39.3	—	34.3	—	—	—
White.....	30.8	14.9	9.6	8.4	9.3	10.6	12.1	30.8	—	31.8	—	—	—
Colored.....	61.9	29.1	15.9	17.1	15.4	24.8	30.8	64.9	—	38.9	—	—	—
Maryland.....	—	—	—	2.2	.7	5.3	8.7	11.3	14.6	—	—	—	—
White.....	—	—	—	.9	.9	4.5	7.8	11.7	13.0	—	—	—	—
Colored.....	—	—	—	9.1	—	9.4	13.7	9.4	22.8	—	—	—	—
Michigan.....	24.1	21.8	10.2	6.7	5.1	6.4	11.8	9.8	13.6	157.2	—	—	—
Minnesota.....	19.2	17.7	6.7	4.3	5.2	6.3	6.9	14.3	32.0	150.1	—	—	—
Mississippi.....	42.8	27.0	17.7	11.2	7.9	6.8	13.1	—	—	9.2	—	—	—
White.....	34.2	20.7	11.4	17.6	8.3	5.7	13.8	—	—	8.3	—	—	—
Colored.....	60.8	32.7	23.4	15.8	7.5	7.8	12.6	—	—	10.1	—	—	—
Montana.....	—	—	—	—	—	11.1	—	—	—	—	—	—	—
Nebraska.....	32.8	26.8	23.3	5.9	5.0	12.1	—	—	—	9.5	—	—	—
New Jersey.....	15.0	10.2	2.2	2.2	1.8	1.6	4.9	9.0	14.8	45.0	9.7	15.7	11.8
New York ¹	23.1	13.0	3.3	2.9	2.0	3.2	8.1	8.8	—	13.7	11.1	10.6	10.8
North Carolina.....	50.2	37.3	—	—	—	—	—	—	49.3	195.2	—	—	—
Pennsylvania.....	26.9	20.6	10.0	6.7	4.9	9.7	16.7	19.4	—	21.0	19.5	19.8	21.6
South Carolina.....	51.6	29.7	17.6	13.9	10.7	9.1	15.8	28.1	—	60.7	18.5	—	—
South Dakota.....	41.5	38.5	15.6	10.0	11.7	8.6	11.7	13.8	36.8	224.1	—	—	—
Tennessee.....	71.0	33.4	18.0	13.2	10.4	5.8	19.8	36.5	62.6	225.9	52.1	—	—
White.....	61.6	27.8	14.7	11.9	9.7	5.9	16.5	32.9	52.2	—	—	—	—
Colored.....	116.6	60.5	34.1	19.2	13.7	5.7	35.7	54.0	112.7	—	—	—	—
Virginia.....	48.7	19.2	9.9	5.0	5.9	9.0	14.2	15.6	35.2	155.0	—	—	—
White.....	36.6	11.4	5.9	1.9	7.0	3.9	10.1	11.1	29.1	149.8	—	—	—
Colored.....	80.3	39.7	20.6	13.2	3.3	22.2	24.8	27.3	51.3	168.7	—	—	—
Wisconsin.....	27.2	20.7	9.9	7.2	6.0	6.6	10.4	10.3	19.5	199.8	—	—	—

POLIOMYELITIS (22)

Alabama.....	0.9	—	2.8	0.5	1.4	0.5	0.5	1.4	0.9	1.8	—	—	—
Arizona.....	(¹)	(²)	2.6	(¹)	(¹)	2.6	(¹)	(¹)	(¹)	(¹)	—	—	—
California.....	.8	2.1	.8	.8	1.8	1.9	.8	1.1	—	1.6	—	—	—
Connecticut.....	—	—	1.5	.7	—	—	(¹)	1.5	—	(¹)	0.8	(¹)	(¹)
Florida.....	—	—	—	—	—	—	(¹)	(¹)	—	—	—	—	—
Hawaii Territory.....	—	3.4	—	—	3.3	3.4	—	3.4	—	(¹)	(¹)	—	—
Illinois.....	—	.3	.2	.2	—	.3	.3	—	.2	—	—	—	—
Indiana.....	—	—	.4	—	—	.4	—	.8	.7	.4	—	—	—
Iowa.....	.5	—	—	.5	1.0	1.5	1.5	1.3	1.5	1.5	—	—	—
Kansas.....	—	—	1.3	.6	.6	1.3	1.3	(¹)	—	.7	—	—	—
Louisiana.....	1.3	.6	—	.6	.6	—	(¹)	.6	—	1.9	—	—	—
Maryland.....	—	—	—	—	.7	.8	—	.8	.7	—	—	—	—
Michigan.....	.5	.5	.8	1.0	1.0	2.1	2.1	1.9	.5	.8	—	—	—
Minnesota.....	.4	.9	—	—	.4	.9	.4	—	—	—	—	—	—
Mississippi.....	1.4	—	2.0	2.0	—	—	—	—	—	.7	—	—	—
Nebraska.....	—	—	.8	1.7	(¹)	—	—	—	.9	—	—	—	—
New Jersey.....	—	.3	.6	.6	.3	.3	1.5	(¹)	.3	—	—	—	—
New York ¹.....	.2	.4	.2	1.4	3.3	4.1	3.7	1.3	—	2.0	2.0	0.7	1.5
North Carolina.....	1.2	.8	—	—	—	—	—	—	.4	.4	—	—	—
Pennsylvania.....	—	.5	.7	.5	.7	.6	1.0	1.0	—	.6	1.0	—	—
South Carolina.....	—	1.3	—	.6	.6	.7	.6	.7	—	.7	1.3	—	—
South Dakota.....	—	5.0	—	—	—	—	—	1.7	—	3.3	—	—	—
Tennessee.....	.5	1.9	1.5	1.9	1.4	1.0	2.4	1.5	.5	4.2	—	—	—
Virginia.....	.9	—	—	.9	4.6	—	1.4	2.3	1.9	.9	1.8	—	—
Wisconsin.....	—	.8	1.2	.4	—	1.2	.4	.4	.4	.8	—	—	—

¹ Exclusive of New York City.² No deaths.

Monthly State mortality statistics—Continued

LETHARGIC ENCEPHALITIS (23)

	1929										Corresponding month for—			
	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.		1928	1927	1926	1925
Alabama.....	1.9	0.5	0.5	0.9	0.5	0.9	0.9	1.0	(?)					
Arizona.....	2.6	(?)	(?)	(?)	2.5	(?)	(?)	(?)	(?)		(?)			
California.....	2.4	1.6	1.3	1.3	1.3	1.6	1.8	1.9			1.6			
Connecticut.....		1.4	.7	.7	1.4	2.2	1.4	1.5			(?)			
Florida.....							.8	1.7						
Hawaii Territory.....				3.3	3.3	3.4		(?)						
Illinois.....	1.4	1.1	.7	.3	.2	.2	.2	1.0						
Indiana.....	1.5	.7	1.1	.7	.4	.8		1.1						
Iowa.....	1.0	1.5		.5		1.5	1.9	1.3			1.9			
Kansas.....	.7	2.6		1.3	.6		.6	.7						
Louisiana.....	0	1.8	0	0	0	0	1.8	(?)			.6			
Maryland.....						5.4	2.2	3.0						
Michigan.....	1.6	2.3	2.1	.5	.3	1.1	1.0	.8			1.0			
Minnesota.....	1.8	1.7	4.0	2.6	.9	.9	1.7	2.7			3.0			
Mississippi.....	1.4	.7	0	0	1.3						1.3			
Montana.....						2.2								
Nebraska.....	0	0	1.7	0	.8	(?)					1.7			
New Jersey.....	1.0	1.2	1.9	.6	1.2	.3	2.5	1.3						
New York ¹.....	.7	.8	2.4	.6	1.0	.2	.6	.4						
North Carolina.....	.4	.4									.8			
Pennsylvania.....	1.2	1.2	.6	1.0	.7	.7	.7	.6			1.5	1.0	0.9	
South Carolina.....	2.0	4.4	3.3		1.3	1.3	2.5	3.3			2.0	3.3		
South Dakota.....	1.7		1.7				5.0				1.7			
Tennessee.....	1.5		.5	1.9	.9	.6	.9	(?)			.5			
Virginia.....	2.4	.5	.9		1.4	.5	.5	.5			1.4			
Wisconsin.....	1.6	2.8	2.5	2.8	.4	1.2	1.2	.8			.8			

MENINGOCOCCUS MENINGITIS (24)

Alabama.....		0.5	0.9	0.5	0.5	0.5	0.5	1.0	0.9					
Arizona.....	23.1	17.4	18.0	9.9	2.5	12.8	2.5	25.7	19.9		9.9			
California.....	12.6	13.2	9.4	4.7	4.1	5.1	3.4	4.3			2.7			
Connecticut.....	.7	1.4					(?)	3.0			(?)		0.8	(?)
Florida.....							(?)	.9						
Hawaii Territory.....	58.3	50.6	27.9	19.7	3.3	6.8	16.4	(?)			6.7	(?)		
Illinois.....	2.8	3.2	2.6	2.1	2.1	.8	1.8				4.3	4.9	1.6	.5
Indiana.....	1.9	3.0	1.9	1.1	.7	1.1		1.1			19.3	1.5		
Iowa.....	2.0	1.5		1.9	1.0		.5	2.7	(?)		1.5			
Kansas.....	2.7	3.2	2.0	3.2	1.3	2.0	1.3	2.0			2.0			
Louisiana.....	5.6	1.8	1.9	.6	1.8	0	3.6	1.9			(?)			
Maryland.....					.8	1.5	2.3	2.9						
Michigan.....	37.9	41.8	27.8	19.2	11.0	7.7	7.7	8.7			4.6			
Minnesota.....	2.2	1.7	1.3	3.5	1.7	.4	1.3	.9			3.9			
Mississippi.....	.7		.7	1.3			1.3							
Montana.....						4.4					(?)			
Nebraska.....	2.6	1.7	1.7	.8	2.5	(?)								
New Jersey.....	2.2	4.6	2.2	2.2	1.2	1.9	2.2	4.8			4.3			
New York ¹	2.1	1.4	.6	1.0	2.1	.2	1.7	1.5						
North Carolina.....	.4	1.2									(?)			
Pennsylvania.....	2.2	3.4	1.2	1.6	2.4	2.1	1.5	1.5			.4			
South Carolina.....	3.9	2.5	2.0	1.9	.6	3.9	2.5	2.0			1.1	.5		
South Dakota.....	1.7										2.6	2.0		
Tennessee.....	3.4	1.9	1.5	2.8	.5	1.5	1.4	2.4			2.8			
Virginia.....	1.4	2.7	.9	1.4		.9		2.4			.9			
Wisconsin.....	2.9	3.6	4.5	1.2	2.4	1.6	1.6	1.7			3.6			

TUBERCULOSIS, ALL FORMS (31-37)

Alabama.....	91.8	88.1	81.3	86.5	78.7	82.8	76.4	74.2	80.7		73.0	84.0	85.2	101.3
White.....	55.0	45.6	39.1	45.6	37.8	44.9	42.8	39.1	49.8		44.9	48.8	36.2	
Colored.....	159.4	167.4	159.4	163.5	155.6	154.0	139.8	140.3	164.8		125.3	147.4	172.2	
Arizona.....	449.2	481.9	395.3	350.2	223.6	220.7	260.8	277.2	340.3		347.8			
California.....	138.6	139.6	130.3	122.8	122.0	109.5	109.3	119.4			129.0			
Connecticut.....	64.5	66.0	61.5	61.7	61.0	52.6	48.8	50.4			53.5	58.3	67.9	60.4
Florida.....							60.9	75.9						
White.....							25.5	47.7						
Colored.....							138.6	137.7						
Georgia.....	74.5	72.4	85.9	68.7	59.2	65.7	56.2	60.8	69.8					
Hawaii Territory.....	121.9	124.5	129.0	111.8	105.2	105.5	108.5	119.1	118.4		141.7	126.5		

¹ Exclusive of New York City.² No deaths.

Monthly State mortality statistics—Continued

TUBERCULOSIS, ALL FORMS (31-37)—continued

	1929									Corresponding month for—			
	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1928	1927	1926	1925
Illinois.....	98.4	70.7	73.9	68.3	64.3	54.1	59.1	50.1	50.1	74.3	72.9	69.7	70.2
Indiana.....	81.6	74.9	81.2	58.2	63.4	63.2	59.3	65.1	69.0	80.5	69.2	66.0	73.4
Iowa.....	40.6	37.3	—	35.9	36.4	33.6	24.7	27.2	28.6	38.8	—	—	—
Kansas.....	36.5	41.1	42.4	34.7	35.3	33.2	25.0	35.8	—	39.1	—	—	—
Louisiana.....	104.2	90.6	99.2	83.3	70.0	81.7	85.1	83.6	—	77.4	—	—	—
White.....	54.9	47.6	53.0	42.9	36.4	52.0	47.6	31.8	—	44.3	—	—	—
Colored.....	194.7	169.6	184.1	157.6	131.9	135.3	154.2	178.8	—	138.0	—	—	—
Maryland.....	—	—	—	99.8	92.5	76.8	91.8	88.1	116.6	—	—	—	—
White.....	—	—	—	67.6	70.2	55.6	68.5	63.6	76.3	—	—	—	—
Colored.....	—	—	—	268.8	209.6	188.3	214.2	216.6	323.5	—	—	—	—
Michigan.....	80.6	85.7	71.3	66.2	60.0	67.3	56.9	50.9	58.7	69.2	—	—	—
Minnesota.....	65.3	55.8	57.2	49.7	51.9	46.5	38.1	35.3	51.0	50.2	—	—	—
Mississippi.....	98.5	91.4	95.8	83.5	67.7	67.3	83.5	—	—	54.6	—	—	—
White.....	41.3	38.6	39.9	30.3	31.1	27.1	40.0	—	—	22.1	—	—	—
Colored.....	150.9	139.8	147.0	132.2	99.3	103.9	119.4	—	—	84.2	—	—	—
Montana.....	—	—	—	—	—	44.3	—	—	—	—	—	—	—
Nebraska.....	42.3	36.0	25.9	29.3	27.6	25.9	—	—	—	20.7	—	—	—
New Jersey.....	84.7	76.1	70.1	75.5	72.4	65.9	69.6	71.3	79.8	65.9	72.9	84.5	75.9
New York ¹	80.6	82.3	78.4	64.7	70.3	57.7	58.5	60.0	—	67.0	68.9	69.0	88.3
North Carolina.....	102.7	91.4	—	—	—	—	—	—	87.8	84.2	—	—	—
Pennsylvania.....	68.8	69.6	63.6	62.3	56.0	52.6	53.8	52.4	—	55.5	63.4	65.3	68.7
South Carolina.....	71.2	87.8	94.0	76.0	69.5	64.6	59.4	65.9	—	65.9	77.8	—	—
South Dakota.....	48.4	60.2	48.4	55.2	65.2	39.7	36.8	38.0	78.6	60.2	—	—	—
Tennessee.....	146.9	133.2	140.5	112.9	105.9	103.9	104.5	100.7	155.8	145.9	145.0	131.2	—
White.....	107.4	102.8	100.1	79.0	81.2	78.6	84.0	78.6	99.9	—	—	—	—
Colored.....	338.3	280.6	292.8	277.6	225.4	221.5	203.4	207.3	189.6	—	—	—	—
Virginia.....	93.6	96.9	78.4	82.3	76.8	74.2	78.6	79.4	80.5	88.3	—	—	—
White.....	53.6	58.8	45.7	49.3	48.7	48.3	52.5	52.9	50.6	67.0	—	—	—
Colored.....	198.3	196.8	164.1	168.7	150.5	141.9	147.2	148.7	158.8	143.9	—	—	—
Wisconsin.....	72.9	47.8	63.4	48.3	46.3	49.0	51.8	49.0	43.9	43.6	—	—	—

CANCER, ALL FORMS (43-49)

Alabama.....	45.0	48.2	54.7	50.8	44.4	53.4	57.2	53.0	53.5	50.5	58.6	51.6	57.3
White.....	55.8	52.6	53.6	58.9	40.6	59.4	59.6	57.2	53.3	48.4	59.8	57.6	—
Colored.....	40.9	39.6	55.9	35.6	51.4	42.3	52.7	45.0	54.1	54.1	56.6	40.7	—
Arizona.....	61.6	69.6	46.2	37.3	47.2	25.7	37.3	38.5	64.6	57.1	—	—	—
California.....	140.7	146.0	134.5	138.8	147.6	137.0	149.6	147.1	—	141.5	—	—	—
Connecticut.....	103.0	116.2	100.8	103.3	119.8	119.4	109.7	120.1	—	110.1	100.5	100.0	112.9
Florida.....	—	—	—	—	—	—	75.9	68.1	—	—	—	—	—
White.....	—	—	—	—	—	—	86.2	79.1	—	—	—	—	—
Colored.....	—	—	—	—	—	—	53.3	44.1	—	—	—	—	—
Georgia.....	36.1	39.7	50.1	44.5	47.4	47.9	51.8	44.4	49.3	—	—	—	—
Hawaii Territory.....	59.3	67.5	80.2	59.2	36.2	91.8	69.1	68.0	59.2	50.6	54.3	—	—
Indiana.....	101.9	110.9	90.0	107.1	84.9	112.2	101.6	96.9	112.7	100.5	102.0	96.5	105.8
Iowa.....	112.7	109.1	—	111.5	106.2	102.7	81.0	154.5	119.8	121.2	—	—	—
Kansas.....	96.8	86.6	94.2	93.7	100.7	88.2	87.3	101.4	—	104.1	—	—	—
Louisiana.....	77.4	75.5	63.0	62.8	69.4	71.1	80.0	65.5	—	64.3	—	—	—
White.....	73.2	86.7	66.5	62.5	69.0	74.2	80.2	66.5	—	59.7	—	—	—
Colored.....	85.0	54.8	55.6	63.4	70.2	65.5	82.2	63.7	—	72.6	—	—	—
Maryland.....	—	—	—	96.9	116.6	102.4	123.1	127.2	110.7	—	—	—	—
White.....	—	—	—	99.7	124.9	112.0	126.6	138.9	102.3	—	—	—	—
Colored.....	—	—	—	82.0	72.9	51.8	104.8	65.9	150.4	—	—	—	—
Michigan.....	98.3	89.0	86.7	100.5	102.8	95.1	95.1	99.6	99.8	96.4	—	—	—
Minnesota.....	112.2	98.6	96.5	97.3	110.3	113.5	121.5	105.5	108.6	110.7	—	—	—
Mississippi.....	51.6	52.6	61.1	38.8	50.0	49.6	47.3	—	—	49.3	—	—	—
White.....	57.0	55.2	78.4	44.1	62.0	49.9	62.0	—	—	56.5	—	—	—
Colored.....	46.8	50.4	45.5	34.0	39.0	49.3	33.9	—	—	42.7	—	—	—
Montana.....	—	—	—	—	—	86.4	—	—	—	—	—	—	—
Nebraska.....	100.2	101.2	100.2	102.2	72.8	93.3	—	—	—	99.4	—	—	—
New Jersey.....	105.7	110.9	117.8	123.3	104.5	123.6	113.7	110.2	119.3	119.9	102.7	113.6	114.5
New York ¹	117.9	128.4	118.1	120.1	121.6	125.9	130.5	125.2	—	115.5	117.6	120.4	128.5
Pennsylvania.....	96.6	98.0	91.0	100.4	93.4	90.8	92.6	93.6	—	100.7	99.3	99.7	87.8
South Carolina.....	36.0	49.1	43.1	43.6	36.6	33.3	46.1	39.8	—	47.0	81.0	—	—
South Dakota.....	74.3	60.2	60.1	66.9	71.9	83.0	80.3	53.6	68.6	87.0	—	—	—
Tennessee.....	63.2	53.6	56.9	62.1	58.8	63.7	51.3	73.9	62.6	66.4	64.4	—	—
White.....	62.2	50.5	52.8	61.3	56.2	62.2	53.9	72.8	65.3	—	—	—	—
Colored.....	68.2	68.8	76.8	66.0	71.5	71.0	41.2	79.5	49.5	—	—	—	—
Virginia.....	56.7	59.4	56.2	68.6	59.9	53.4	48.9	64.3	56.2	63.6	—	—	—
White.....	62.0	63.8	59.4	75.8	61.3	55.5	55.0	68.6	60.0	72.0	—	—	—
Colored.....	42.7	48.0	47.9	49.6	56.2	47.9	33.1	53.0	46.3	41.3	—	—	—
Wisconsin.....	104.7	104.9	96.8	111.2	117.6	125.7	119.6	107.1	108.4	111.2	—	—	—

¹ Exclusive of New York City.

Monthly State mortality statistics—Continued

DIABETES (57)

	1929										Corresponding month for—			
	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.		1928	1927	1926	1925
Alabama.....	10.9	6.4	10.0	6.4	5.0	9.5	8.7	9.5	10.1	10.1	14.1	7.6	5.7	
White.....	12.3	5.6	12.3	4.9	5.6	11.6	6.3	11.6	10.5	11.9	16.8	8.9		
Colored.....	8.2	7.9	5.4	9.2	4.0	5.5	13.2	5.4	9.2	6.6	9.2	5.3		
Arizona.....	10.3	9.9	7.7	(5)	(9)	2.6	7.5	5.1	9.9	2.5				
California.....	21.4	18.1	19.0	30.4	21.4	19.5	21.2	24.6		24.8				
Connecticut.....	14.1	17.2	11.9	15.1	12.2	18.5	23.7	11.9		15.8				
Florida.....							14.2	10.3						
White.....							12.1	10.0						
Colored.....							18.7	11.0						
Georgia.....	6.5	6.3	7.6	10.3		9.1	11.0	8.0	11.8					
Hawaii Territory.....	13.9	16.9	17.4	19.7	3.3	17.0	19.7	3.4	13.2	6.7	7.2			
Indiana.....	13.8	14.1	11.9	12.2	16.3	17.2		15.3	17.4	14.8				
Iowa.....	18.0	21.3		16.5	11.6	16.0	20.9	27.9	17.0	29.6				
Kansas.....	22.5	19.2	17.2	15.4	21.2	20.6	19.3	24.5		15.3				
Louisiana.....	7.0	10.3	6.2	9.7	9.1	15.0	10.9	13.1		11.9				
White.....	6.7	8.4	2.9	11.2	11.2	18.3	11.2	14.5		15.4				
Colored.....	7.1	13.7	12.4		6.9	5.1	8.8	10.3		5.3				
Maryland.....				21.9	13.1	13.6	14.6	15.1	24.0					
White.....				20.8	13.0	11.7	16.5	16.1	23.4					
Colored.....				22.8	13.7	23.5	4.6	9.4	27.3					
Michigan.....	21.2	23.3	19.3	20.3	17.4	18.0	15.4	18.0	20.8	26.4				
Minnesota.....	13.9	14.7	15.2	9.5	21.2	13.9	13.0	17.9	20.3	26.0				
Mississippi.....	6.8	7.2	2.0	8.6	4.6	4.1	8.5			6.6				
White.....	7.1	6.9	1.4	8.3	4.1	4.3	11.0			8.2				
Colored.....	6.5	7.6	2.6	8.8	5.0	3.9	6.3			5.0				
Montana.....						8.9								
Nebraska.....	24.2	20.1	17.3	25.9	17.6	18.1				19.0				
New Jersey.....	24.5	22.2	22.6	22.8	17.9	19.1	24.0	22.9	26.5	26.2	31.7	20.4		
New York ¹	22.9	27.1	22.3	25.4	20.1	20.9	25.8	24.1		20.4	23.9	22.3	22.8	
Pennsylvania.....	23.4	21.8	16.2	15.2	13.9	20.3	24.0	18.3		21.3	19.4	19.3	18.4	
South Carolina.....	5.2	7.6	3.3	10.7	11.4	9.1	5.7	6.5		8.5	6.6			
South Dakota.....	8.6	21.7	20.7	10.0	20.1	8.6	18.4	15.6	26.8	31.8				
Tennessee.....	9.2	8.0	9.2	8.0	8.9	10.7	7.5	13.1	14.6	8.5				
White.....	8.2	10.2	7.6	9.1	7.4	9.4	7.9	13.5	14.2					
Colored.....	14.2	11.0	17.2	2.8	16.5	17.0	5.5	11.4	16.5					
Virginia.....	10.9	7.8	7.1	10.1	10.1	11.3	10.5	9.9	19.7	13.3				
White.....	13.1	5.1	6.5	9.5	11.4	12.4	9.5	13.1	22.1	11.4				
Colored.....	5.1	14.9	8.6	11.6	6.6	8.5	13.2	1.7	13.2	18.2				

DISEASES OF THE NERVOUS SYSTEM (70-80)

Alabama.....	108.3	111.2	97.9	87.0	96.1	98.8	103.0	94.1	119.0	109.4				
White.....	97.0	99.5	79.7	69.4	78.5	81.1	89.0	78.9	99.5	100.9				
Colored.....	129.4	133.2	132.2	120.0	129.2	132.2	129.2	122.6	155.6	125.3				
Arizona.....	112.9	104.3	82.1	72.0	64.6	69.3	62.1	79.6	91.9	106.8				
California.....	143.4	125.0	189.9	130.8	118.9	118.9	114.8	127.1		154.1				
Florida.....							107.6	119.9						
White.....							86.2	107.9						
Colored.....							154.6	146.0						
Iowa.....	144.3	134.3		123.6	120.7	110.7	111.0	202.2	142.6	144.0				
Kansas.....	139.2	143.7	135.9	120.6	132.8	103.4	121.9	127.3		161.7				
Louisiana.....	91.7	91.2	101.7	79.7	85.7	81.7	111.1	104.2		106.1				
White.....	80.0	64.3	85.8	69.0	69.9	73.2	89.5	76.1		80.9				
Colored.....	113.3	140.5	131.0	99.3	114.8	97.3	150.7	155.8		182.2				
Maryland.....				115.8	96.9	118.2	132.6	137.8	173.4					
White.....				114.5	94.5	113.8	126.6	134.4	155.2					
Colored.....				123.0	109.4	141.3	164.0	150.7	268.8					
Michigan.....	138.6	145.2	126.1	115.2	135.9	120.1	129.5	130.1	136.7	161.8				
Minnesota.....	99.7	100.8	82.2	91.3	77.4	78.7	81.8	99.7	94.7	99.9				
Montana.....						77.6								
Nebraska.....	108.9	120.4	100.3	77.8	92.8	91.6				96.8				
New Jersey.....	128.3	112.5	96.5	103.5	88.7	107.6	108.8	117.8	130.0	118.9	123.1	145.3	152.4	
New York ¹	150.4	160.3	119.7	125.9	118.0	126.7	137.1	140.6		136.6	141.3	148.6	190.8	
Pennsylvania.....	122.4	119.6	94.0	96.0	93.6	98.7	104.2	106.9		119.8				
South Dakota.....	96.8	83.6	81.2	70.2	98.7	83.0	87.0	74.3	123.8	130.5				
Tennessee.....	103.6	106.4	104.1	98.8	83.8	91.9	101.6	98.2	128.5					
White.....	90.3	85.9	91.5	81.8	75.5	75.1	93.1	83.3	120.4					
Colored.....	167.7	206.3	250.2	181.4	123.7	173.2	142.9	170.4	167.7					
Virginia.....	125.7	108.4	108.7	111.6	86.0	105.4	104.7	110.6	116.6	119.8				
White.....	101.2	88.4	80.5	97.3	60.0	84.2	91.0	92.7	98.7	85.3				
Colored.....	189.9	160.4	158.0	148.9	153.8	160.6	140.6	157.2	168.7	210.6				

¹ Exclusive of New York City.² No deaths.

Monthly State mortality statistics—Continued

CEREBRAL HEMORRHAGE, APOPLEXY (74)

	1929										Corresponding month for—			
	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.		1928	1927	1926	1925
Alabama.....	63.7	68.4	56.6	55.3	55.8	60.0	60.9	57.7	67.7		65.6	68.9	64.8	54.4
White.....	54.3	58.9	44.9	42.8	48.3	56.5	51.2	49.2	58.2		63.9	62.7	61.3	.....
Colored.....	79.0	84.4	76.3	51.8	73.8	92.7	79.1	73.6	85.7		63.3	80.3	71.0	.....
Arizona.....	46.2	59.6	46.2	22.4	32.3	46.2	.....	.....	.....		112.2	.....	.....	.....
California.....	100.9	91.7	95.3	93.8	89.9	81.2	.....	86.6	92.7		.....	.....	.....	.....
Florida.....	.....	.....	.....	.....	.....	.....	.....	87.6	84.5		.....	.....	.....	.....
White.....	.....	.....	.....	.....	.....	.....	.....	70.5	70.3		.....	.....	.....	.....
Colored.....	.....	.....	.....	.....	.....	.....	125.3	115.7	.....		.....	.....	.....	.....
Georgia.....	58.1	67.6	77.5	69.5	59.6	69.9	.....	.....	59.2		67.6	65.2	.....	.....
Hawaii Territory.....	48.8	50.6	45.3	72.4	55.0	57.8	69.1	23.8	59.2		140.1	123.3	113.1	106.5
Indiana.....	104.2	107.1	106.5	104.5	85.6	91.9	.....	105.3	122.7		106.2	.....	.....	.....
Iowa.....	108.7	98.4	.....	88.7	89.7	85.7	86.8	147.9	69.9		131.3	.....	.....	.....
Kansas.....	110.8	112.9	106.8	93.0	102.7	81.6	95.6	98.1	.....		73.6	.....	.....	.....
Louisiana.....	61.2	62.2	61.8	50.1	51.3	59.9	76.7	66.1	.....		54.9	.....	.....	.....
White.....	51.1	44.8	49.1	44.8	39.2	53.0	63.4	49.1	.....		108.0	.....	.....	.....
Colored.....	79.6	94.2	84.9	60.0	73.7	72.6	101.1	97.3	.....		.....	.....	.....	.....
Maryland.....	.....	.....	.....	88.9	72.9	84.3	105.6	96.4	126.8		.....	.....	.....	.....
White.....	.....	.....	.....	88.5	73.7	78.0	98.9	95.9	118.0		.....	.....	.....	.....
Colored.....	.....	.....	.....	91.1	68.3	117.7	141.3	99.9	173.1		.....	.....	.....	.....
Michigan.....	100.2	102.3	89.6	80.0	82.6	85.3	95.9	91.2	102.3		115.2	.....	.....	.....
Minnesota.....	71.5	77.9	63.0	64.0	58.8	56.8	60.6	78.7	74.0		74.4	.....	.....	.....
Mississippi.....	64.5	77.6	63.2	71.0	64.4	63.9	84.1	.....	.....		61.8	.....	.....	.....
White.....	59.8	66.2	58.4	55.2	62.4	62.7	78.6	.....	.....		62.0	.....	.....	.....
Colored.....	69.0	88.2	67.6	85.6	75.4	64.9	89.2	.....	.....		61.6	.....	.....	.....
Montana.....	.....	.....	.....	.....	.....	55.4	.....	.....	.....		.....	.....	.....	.....
Nebraska.....	82.1	92.8	72.6	60.2	71.1	71.7	.....	.....	.....		76.9	.....	.....	.....
New Jersey.....	90.1	85.1	67.2	75.5	67.8	76.7	80.1	89.2	103.5		.....	.....	.....	.....
New York ¹	115.6	120.8	95.1	95.3	84.2	96.4	109.6	110.7	.....		107.2	107.2	112.3	149.0
Pennsylvania.....	88.4	87.5	71.7	76.0	64.5	71.9	77.7	82.8	.....		92.0	88.1	91.2	63.9
South Dakota.....	55.3	53.5	50.1	45.2	51.9	48.4	56.9	34.6	85.3		78.6	.....	.....	.....
Tennessee.....	55.9	69.6	59.3	53.2	62.7	55.9	63.1	63.7	77.6		.....	.....	.....	.....
White.....	45.8	53.4	51.6	47.1	47.1	48.7	58.5	51.0	70.4		.....	.....	.....	.....
Colored.....	105.2	148.6	96.7	82.5	79.7	90.9	85.2	125.0	112.7		.....	.....	.....	.....
Virginia.....	90.3	71.3	78.4	84.6	87.6	70.4	78.2	85.0	88.2		82.8	.....	.....	.....
White.....	73.1	57.5	63.4	74.6	41.1	51.6	69.5	69.2	72.0		56.9	.....	.....	.....
Colored.....	135.0	107.5	117.9	110.8	100.9	119.6	100.9	126.5	130.7		150.5	.....	.....	.....

DISEASES OF THE CIRCULATORY SYSTEM (87-96)

Alabama.....	141.4	149.2	134.3	132.3	138.7	130.0	148.7	152.3	175.3	151.5	.....	.....	.....	.....
White.....	119.5	113.5	107.9	89.7	107.2	97.8	124.0	120.9	138.1	128.3	.....	.....	.....	.....
Colored.....	182.0	216.2	183.9	212.3	197.8	190.8	195.0	211.2	245.2	195.1	.....	.....	.....	.....
Arizona.....	112.9	86.9	136.0	129.2	62.1	100.1	114.3	136.0	166.4	253.4	.....	.....	.....	.....
California.....	360.2	335.7	326.1	294.1	304.2	296.8	312.4	356.0	.....	387.0	.....	.....	.....	.....
Florida.....	.....	.....	.....	.....	.....	.....	165.2	180.6	.....	.....	.....	.....	.....	.....
White.....	.....	.....	.....	.....	.....	.....	160.3	180.7	.....	.....	.....	.....	.....	.....
Colored.....	282.6	271.6	.....	222.1	190.6	231.0	175.9	212.1	.....	.....	.....	.....	.....	.....
Iowa.....	198.9	198.0	179.0	160.4	158.5	175.0	240.0	340.1	295.8	329.8	.....	.....	.....	.....
Kansas.....	209.6	195.0	195.9	195.8	178.1	175.3	182.9	196.3	.....	165.6	.....	.....	.....	.....
Louisiana.....	164.8	148.3	154.2	149.2	140.8	128.2	201.7	217.8	.....	202.2	.....	.....	.....	.....
White.....	202.0	280.9	272.6	284.3	246.7	262.0	150.1	180.2	.....	165.7	.....	.....	.....	.....
Colored.....	.....	.....	.....	.....	.....	.....	296.3	286.7	.....	269.0	.....	.....	.....	.....
Maryland.....	.....	.....	.....	239.7	140.4	219.8	241.9	253.7	280.5	.....	.....	.....	.....	.....
White.....	.....	.....	.....	230.7	105.5	196.0	230.7	245.2	273.2	.....	.....	.....	.....	.....
Colored.....	266.3	278.5	245.4	215.2	206.5	219.7	300.7	282.6	314.4	348.2	.....	.....	.....	.....
Michigan.....	178.8	189.5	176.1	171.3	153.1	161.4	219.5	242.2	265.4	269.5	.....	.....	.....	.....
Minnesota.....	.....	.....	.....	.....	.....	139.6	168.3	175.2	208.1	.....	.....	.....	.....	.....
Montana.....	173.7	209.1	146.9	168.2	130.5	176.3	.....	.....	.....	163.3	.....	.....	.....	.....
Nebraska.....	297.4	258.5	255.1	233.9	192.3	222.6	108.8	106.0	318.0	307.2	256.6	272.9	255.1	.....
New Jersey.....	369.9	341.2	297.2	301.3	305.2	304.7	337.7	347.9	.....	358.2	318.4	315.5	248.6	.....
New York ¹	269.7	248.0	217.5	206.7	190.9	201.2	237.3	254.1	.....	243.2	.....	.....	.....	.....
Pennsylvania.....	269.6	296.9	312.0	272.9	296.9	277.4	318.4	323.7	.....	254.6	253.2	.....	.....	.....
South Carolina.....	134.8	161.6	115.8	95.3	148.9	100.2	128.8	133.1	225.8	224.1	.....	.....	.....	.....
South Dakota.....	136.6	149.2	149.8	142.6	120.0	134.2	135.1	134.7	176.0	.....	.....	.....	.....	.....
Tennessee.....	116.2	132.3	119.1	113.0	97.4	111.5	109.6	112.7	155.6	.....	.....	.....	.....	.....
White.....	235.9	291.1	298.5	285.8	219.9	244.2	258.4	241.4	274.8	.....	.....	.....	.....	.....
Colored.....	164.4	185.2	174.3	149.1	140.4	145.1	177.9	179.1	198.4	204.4	.....	.....	.....	.....
Virginia.....	150.9	159.9	145.0	130.8	105.5	121.5	157.4	162.0	175.1	180.7	.....	.....	.....	.....
White.....	200.0	251.4	251.2	196.8	231.3	206.8	231.5	223.9	259.7	266.3	.....	.....	.....	.....
Colored.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

¹ Exclusive of New York City.

Monthly State mortality statistics—Continued

DISEASES OF THE HEART (87-90)

	1929										Corresponding month for—			
	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.		1928	1927	1926	1925
Alabama	132.6	140.4	125.0	124.0	125.4	122.0	136.8	136.2	158.8		140.9	125.7	109.2	125.0
White	110.8	105.1	98.9	86.9	93.9	90.5	111.4	105.7	128.3		115.6	115.1	95.3	---
Colored	171.7	205.7	177.1	193.8	184.6	181.3	184.6	193.5	216.2		187.2	144.7	194.1	---
Arizona	112.9	79.5	120.6	119.2	96.9	84.7	104.3	151.4	141.6		231.0	---	---	---
California	317.0	299.0	286.3	268.7	267.5	259.6	263.9	312.4	---		344.9	---	---	---
Connecticut	194.3	190.9	155.0	170.0	154.3	153.5	187.1	162.4	---		198.3	148.8	175.6	214.0
Florida	---	---	---	---	---	---	151.0	171.6	---		---	---	---	---
White	---	---	---	---	---	---	144.5	160.7	---		---	---	---	---
Colored	---	---	---	---	---	---	165.3	195.6	---		---	---	---	---
Georgia	107.5	105.9	141.7	117.7	102.9	109.8	117.3	101.0	140.8		---	---	---	---
Hawaii Territory	132.5	141.7	118.5	92.1	102.0	119.1	95.4	136.1	108.5		108.0	108.7	---	---
Indiana	199.2	238.0	222.2	187.6	167.9	186.2	---	170.5	184.2		209.5	183.2	179.0	165.5
Iowa	251.1	239.6	---	197.4	167.3	209.5	200.5	303.0	197.4		292.9	---	---	---
Kansas	173.1	175.2	153.2	139.9	131.5	151.8	162.3	172.4	---		171.2	---	---	---
Louisiana	192.8	183.6	177.8	182.9	167.6	159.7	190.2	200.3	---		187.8	---	---	---
White	150.3	137.1	137.8	138.9	131.5	115.6	137.1	162.9	---		152.2	---	---	---
Colored	270.8	268.9	251.3	263.8	233.0	240.7	287.8	269.0	---		253.1	---	---	---
Maryland	---	---	---	204.0	199.6	183.7	218.6	224.4	254.3		---	---	---	---
White	---	---	---	198.6	184.7	174.8	208.1	216.9	245.4		---	---	---	---
Colored	---	---	---	232.4	278.0	230.7	273.4	263.7	296.2		---	---	---	---
Michigan	238.5	240.0	218.1	285.2	177.7	186.6	188.5	214.9	230.8		290.3	---	---	---
Minnesota	109.1	152.7	136.8	140.6	121.5	127.8	132.8	139.5	172.6		231.4	---	---	---
Mississippi	109.7	111.8	108.0	127.0	111.8	87.6	124.3	---	---		88.7	---	---	---
White	95.5	95.1	84.1	91.0	104.8	69.8	113.1	---	---		80.0	---	---	---
Colored	117.1	127.2	130.1	159.9	118.1	103.9	134.5	---	---		96.8	---	---	---
Montana	---	---	---	---	---	---	126.2	---	---		---	---	---	---
Nebraska	173.7	187.3	132.2	145.5	117.1	152.9	---	---	---		140.8	---	---	---
New Jersey	276.1	236.0	226.7	214.8	273.5	207.3	241.9	---	289.0		---	---	---	---
New York ¹	322.0	292.6	257.9	262.4	261.6	258.6	292.4	295.0	---		312.0	275.2	270.4	290.8
Pennsylvania	232.3	221.3	196.7	185.9	172.8	178.3	214.3	228.7	---		222.0	225.0	214.0	190.0
South Dakota	115.8	142.2	102.0	76.9	117.1	95.0	112.1	103.7	192.8		204.0	---	---	---
Tennessee	125.0	137.9	135.7	128.0	106.4	122.5	120.9	122.1	155.8		158.6	---	---	---
White	92.7	122.6	108.5	97.7	83.5	102.1	94.3	100.9	135.1		---	---	---	---
Colored	201.8	211.8	267.2	274.8	217.1	221.5	250.1	224.4	255.6		---	---	---	---
Virginia	149.3	171.0	156.4	129.5	121.6	129.0	167.8	164.4	180.2		188.4	---	---	---
White	134.5	145.4	129.3	121.3	89.1	107.8	137.8	146.9	158.0		168.1	---	---	---
Colored	188.0	238.2	227.3	186.9	206.7	184.6	213.4	210.2	238.2		241.5	---	---	---

DISEASES OF THE RESPIRATORY SYSTEM (97-107)

Alabama	102.6	84.7	61.0	37.1	40.7	42.1	68.6	86.1	142.3	141.4	---	---	---	---
White	84.7	63.1	48.5	24.5	34.3	39.8	58.9	72.4	117.7	114.2	---	---	---	---
Colored	136.2	125.3	84.5	60.7	52.7	46.3	87.0	111.7	188.5	192.5	---	---	---	---
Arizona	197.6	171.4	166.8	101.8	74.5	87.3	79.5	187.4	238.5	320.4	---	---	---	---
California	139.1	98.5	92.1	64.4	56.3	63.6	76.0	117.2	---	150.2	---	---	---	---
Florida	---	---	---	---	---	---	54.2	69.8	---	---	---	---	---	---
White	---	---	---	---	---	---	35.2	56.5	---	---	---	---	---	---
Colored	---	---	---	---	---	---	96.0	99.2	---	---	---	---	---	---
Iowa	82.2	71.8	---	43.2	35.4	47.6	54.3	88.9	110.6	159.5	---	---	---	---
Kansas	86.2	50.0	33.8	20.5	37.2	27.8	37.2	67.0	---	61.0	---	---	---	---
Louisiana	80.5	65.2	61.8	51.3	50.2	54.3	79.7	118.5	---	102.9	---	---	---	---
White	51.1	42.0	40.1	28.9	39.2	37.6	60.6	81.9	---	79.0	---	---	---	---
Colored	134.5	107.9	84.9	92.5	87.4	85.0	114.8	185.8	---	146.9	---	---	---	---
Maryland	---	---	---	---	---	---	56.1	63.2	---	---	---	---	---	---
White	---	---	---	34.7	37.3	48.4	74.6	88.7	137.0	---	---	---	---	---
Colored	---	---	---	168.6	136.7	127.1	209.6	263.7	287.1	---	---	---	---	---
Michigan	130.1	121.8	87.5	42.6	45.4	51.9	79.0	73.1	112.8	219.8	---	---	---	---
Minnesota	74.2	71.8	49.2	35.0	32.9	43.4	64.9	67.1	103.8	153.1	---	---	---	---
Montana	---	---	---	---	---	---	24.4	---	---	---	---	---	---	---
Nebraska	75.2	56.9	40.6	22.6	17.7	36.3	---	---	---	30.2	---	---	---	---
New Jersey	116.9	101.4	62.7	50.5	45.3	49.4	60.9	92.3	128.8	---	---	---	---	---
New York ¹	134.2	109.2	73.6	48.7	48.2	51.1	86.2	87.0	---	104.4	98.7	117.0	142.8	---
Pennsylvania	117.6	99.1	67.1	47.7	47.6	61.2	90.1	95.2	---	112.7	---	---	---	---
South Dakota	81.2	75.3	44.9	46.8	55.2	31.1	35.1	29.4	118.7	145.5	---	---	---	---
Tennessee	97.7	74.8	50.1	44.7	50.4	66.6	79.5	103.6	171.8	---	---	---	---	---
White	83.3	59.0	37.5	36.9	41.5	64.6	67.6	85.1	153.3	---	---	---	---	---
Colored	167.7	151.3	110.9	82.5	93.4	125.0	137.4	193.1	261.1	---	---	---	---	---
Virginia	79.9	71.8	41.6	35.2	38.4	41.1	62.2	80.8	134.9	113.9	---	---	---	---
White	61.4	53.7	30.7	31.0	26.5	26.8	43.0	65.8	104.3	95.4	---	---	---	---
Colored	128.2	119.1	70.1	46.3	69.5	78.6	112.5	152.1	215.0	162.1	---	---	---	---

¹ Exclusive of New York City.

Monthly State mortality statistics—Continued

PNEUMONIA, ALL FORMS (100, 101)

	1929									Corresponding month for—			
	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1928	1927	1926	1925
Alabama.....	97.9	79.8	53.4	32.5	34.8	21.7	56.7	75.7	129.5	131.2	143.0	93.7	157.0
White.....	80.4	60.3	41.3	21.7	28.0	32.6	47.7	62.3	108.0	104.4	136.3	85.7	-----
Colored.....	129.4	116.0	76.3	52.7	47.5	30.0	73.8	100.8	168.8	150.6	155.5	107.8	-----
Arizona.....	154.0	144.1	148.9	67.1	47.2	66.5	64.6	144.3	188.8	337.8	-----	-----	-----
California.....	119.4	83.5	76.9	54.8	45.2	47.8	62.5	100.4	-----	139.9	-----	-----	-----
Connecticut.....	104.5	86.8	54.1	43.8	35.2	44.5	66.7	69.7	-----	71.0	72.1	78.0	137.6
Florida.....	-----	-----	-----	-----	-----	-----	39.2	59.5	-----	-----	-----	-----	-----
White.....	-----	-----	-----	-----	-----	-----	28.7	47.7	-----	-----	-----	-----	-----
Colored.....	-----	-----	-----	-----	-----	-----	60.6	85.4	-----	-----	-----	-----	-----
Georgia.....	70.3	46.7	52.4	34.2	24.3	39.1	47.1	60.0	102.9	-----	-----	-----	-----
Hawaii Territory.....	217.5	202.4	139.4	121.7	157.9	105.5	102.0	95.3	-----	92.1	141.7	210.1	-----
Illinois.....	92.2	86.6	57.6	34.2	30.7	36.2	50.9	-----	-----	111.8	210.5	107.8	91.2
Indiana.....	83.5	85.6	50.2	24.8	38.2	55.2	71.9	77.4	134.6	233.2	117.0	130.6	139.6
Iowa.....	71.7	40.2	-----	36.4	26.7	37.6	45.1	82.9	95.5	-----	-----	-----	-----
Kansas.....	76.9	41.1	23.9	13.5	28.2	23.2	30.2	61.7	-----	-----	-----	-----	-----
Louisiana.....	68.0	52.5	58.0	43.5	45.9	48.7	67.0	105.4	-----	-----	-----	-----	-----
White.....	41.4	31.7	45.3	24.2	29.8	32.8	50.4	71.3	-----	-----	-----	-----	-----
Colored.....	116.8	90.8	81.4	78.8	75.4	77.9	97.6	168.1	-----	127.4	-----	-----	-----
Maryland.....	-----	-----	-----	46.6	45.2	52.0	89.6	102.4	130.1	-----	-----	-----	-----
White.....	-----	-----	-----	27.8	31.2	41.2	66.8	75.3	130.1	-----	-----	-----	-----
Colored.....	-----	-----	-----	145.8	118.5	108.3	205.0	244.8	255.2	-----	-----	-----	-----
Michigan.....	114.2	105.7	73.4	33.6	33.9	41.3	62.8	61.0	93.4	190.3	-----	-----	-----
Minnesota.....	68.4	65.3	30.8	28.1	29.4	36.2	56.2	60.3	101.2	147.5	-----	-----	-----
Mississippi.....	63.2	38.8	20.5	15.1	19.7	38.7	43.4	-----	-----	28.9	-----	-----	-----
White.....	48.4	41.4	17.1	13.8	23.4	44.2	38.6	-----	-----	20.2	-----	-----	-----
Colored.....	76.8	36.5	35.0	16.4	16.3	33.8	47.8	-----	-----	31.4	-----	-----	-----
Montana.....	-----	-----	-----	-----	-----	17.7	-----	-----	-----	23.3	-----	-----	-----
Nebraska.....	65.7	51.0	35.4	16.7	11.7	29.4	-----	-----	-----	160.5	61.2	76.8	79.8
New Jersey.....	99.4	91.2	51.6	44.1	37.0	39.8	61.3	82.5	116.8	89.2	83.0	100.2	118.1
New York ¹	116.7	92.4	62.8	37.6	39.3	42.5	71.8	72.9	-----	151.9	-----	-----	-----
North Carolina.....	113.5	81.0	-----	-----	-----	-----	-----	-----	168.7	-----	-----	-----	-----
Pennsylvania.....	97.7	85.0	52.7	38.9	37.5	49.3	75.3	80.9	-----	97.1	92.2	120.0	140.0
South Carolina.....	90.7	77.1	62.0	37.9	44.8	58.1	70.7	78.3	-----	95.9	89.7	-----	-----
South Dakota.....	62.2	68.6	34.6	36.8	46.8	25.9	26.8	29.4	95.3	117.1	-----	-----	-----
Tennessee.....	86.6	66.4	39.4	33.9	41.4	55.9	66.4	90.9	154.8	122.4	163.0	116.9	-----
White.....	73.9	53.4	31.7	28.4	34.1	46.9	55.6	75.7	137.4	-----	-----	-----	-----
Colored.....	147.8	129.3	76.8	60.5	79.7	99.4	118.2	164.7	239.1	-----	-----	-----	-----
Virginia.....	68.0	60.4	36.9	26.5	28.8	31.7	52.1	77.0	120.7	98.3	-----	-----	-----
White.....	50.9	44.9	28.1	24.0	20.2	20.2	36.0	53.6	92.3	80.3	-----	-----	-----
Colored.....	112.8	100.9	59.8	33.1	51.3	61.5	94.3	138.4	195.2	145.5	-----	-----	-----
Wisconsin.....	84.5	78.9	49.0	30.0	29.9	38.3	0	69.6	92.5	164.3	-----	-----	-----

DISEASES OF THE DIGESTIVE SYSTEM (108-127)

Alabama.....	61.9	106.2	147.5	139.1	107.5	100.7	67.7	60.5	63.1	67.7	-----	-----	-----
White.....	46.3	101.6	143.4	36.0	100.2	92.0	64.5	51.4	61.0	66.6	-----	-----	-----
Colored.....	91.3	104.7	155.3	145.0	121.3	117.2	73.8	77.7	67.2	69.9	-----	-----	-----
Arizona.....	79.6	201.2	264.4	139.1	206.2	238.7	166.4	92.4	109.3	106.8	-----	-----	-----
California.....	94.5	92.0	103.9	112.9	103.0	111.1	109.1	103.6	-----	90.0	-----	-----	-----
Florida.....	-----	-----	-----	-----	-----	-----	93.5	104.3	-----	-----	-----	-----	-----
White.....	-----	-----	-----	-----	-----	-----	76.5	96.2	-----	-----	-----	-----	-----
Colored.....	-----	-----	-----	-----	-----	-----	130.6	115.7	-----	-----	-----	-----	-----
Hawaii Territory.....	198.7	182.2	174.3	180.9	157.9	132.7	115.1	193.9	138.1	145.1	130.4	-----	-----
Iowa.....	66.0	62.1	-----	68.9	62.1	66.6	62.1	74.9	84.9	62.6	-----	-----	-----
Kansas.....	84.2	62.9	76.3	85.3	91.1	82.2	80.9	67.6	-----	76.9	-----	-----	-----
Louisiana.....	78.6	112.3	128.5	122.6	105.7	111.1	106.3	102.9	-----	87.4	-----	-----	-----
White.....	56.9	87.7	80.7	106.3	86.7	86.7	82.1	97.3	-----	65.5	-----	-----	-----
Colored.....	118.6	157.6	205.3	152.4	140.5	155.8	150.7	113.3	-----	127.4	-----	-----	-----
Maryland.....	-----	-----	-----	96.2	142.8	115.2	96.9	75.3	79.4	-----	-----	-----	-----
White.....	-----	-----	-----	80.7	124.9	99.5	83.3	67.2	77.2	-----	-----	-----	-----
Colored.....	-----	-----	-----	173.1	236.9	193.1	168.6	117.7	91.1	-----	-----	-----	-----
Michigan.....	80.6	90.5	89.0	78.2	95.7	128.3	101.6	74.5	83.1	90.8	-----	-----	-----
Minnesota.....	63.5	67.9	59.0	64.5	64.0	63.0	56.2	60.8	75.3	58.4	-----	-----	-----
Montana.....	-----	-----	-----	-----	-----	88.6	-----	-----	-----	-----	-----	-----	-----
Nebraska.....	73.4	71.9	55.3	71.1	88.1	73.4	-----	-----	-----	86.4	-----	-----	-----
New Jersey.....	76.1	75.8	73.6	74.6	71.8	92.7	79.8	74.2	69.9	74.6	57.2	62.1	58.9
New York ¹	69.9	71.8	62.0	64.7	79.0	93.6	80.2	70.3	-----	72.4	80.4	71.9	88.8
Pennsylvania.....	75.0	61.4	62.9	71.5	87.8	120.3	82.3	65.5	-----	73.8	-----	-----	-----
South Dakota.....	58.8	78.6	44.9	58.5	80.3	95.0	58.5	39.7	78.6	87.0	-----	-----	-----
Tennessee.....	70.0	71.1	110.9	171.8	132.2	98.2	101.2	74.9	68.2	-----	-----	-----	-----
White.....	55.1	63.0	142.1	160.7	127.2	90.9	89.1	65.1	63.6	-----	-----	-----	-----
Colored.....	142.1	110.0	104.4	225.4	162.2	133.5	159.4	122.1	90.7	-----	-----	-----	-----
Virginia.....	52.0	60.4	102.5	104.3	99.7	69.9	64.9	54.8	84.9	51.7	-----	-----	-----
White.....	47.7	36.7	73.8	87.9	87.8	59.4	56.9	50.9	42.3	39.8	-----	-----	-----
Colored.....	63.2	122.4	177.7	147.2	130.7	97.4	86.0	64.9	87.7	82.7	-----	-----	-----

¹ Exclusive of New York City.

Monthly State mortality statistics—Continued

DIARRHEA AND ENTERITIS UNDER 2 YEARS (113)

	1929									Corresponding month for—			
	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1928	1927	1926	1925
Alabama	12.4	40.8	64.8	62.7	33.4	28.4	22.0	12.8	13.3	13.3	18.8	10.4	13.6
White	5.8	38.5	65.9	67.3	30.8	26.8	21.0	11.6	12.6	13.3	19.7	10.3	—
Colored	24.5	44.8	62.7	54.1	38.2	31.3	23.7	15.0	14.5	13.2	17.1	10.5	—
Arizona	28.2	131.7	202.8	136.6	139.1	148.9	114.3	43.6	29.8	47.2	—	—	—
California	11.2	17.6	23.0	28.4	27.1	27.0	23.0	19.2	—	15.0	—	—	—
Connecticut	5.2	11.5	8.2	5.0	17.9	—	(7)	13.3	—	4.5	17.6	7.8	8.7
Florida	—	—	—	—	—	—	18.4	14.7	—	—	—	—	—
White	—	—	—	—	—	—	14.6	12.6	—	—	—	—	—
Colored	—	—	—	—	—	—	26.7	19.3	—	—	—	—	—
Georgia	12.2	22.8	35.3	29.8	27.6	14.8	12.9	14.4	7.7	—	—	—	—
Hawaii Territory	—	—	—	—	—	—	98.7	65.8	78.3	82.2	—	—	—
Indiana	5.7	7.4	10.3	25.6	47.1	43.7	23.7	6.1	7.8	6.2	4.5	7.2	10.3
Iowa	4.5	2.9	—	3.9	5.8	4.5	1.9	7.3	2.9	1.9	—	—	—
Kansas	7.3	4.5	6.0	12.2	19.2	24.5	15.4	7.3	—	12.6	—	—	—
Louisiana	22.4	34.4	49.3	34.4	31.4	29.9	29.6	22.5	—	23.7	—	—	—
White	15.4	21.4	27.0	28.9	22.4	19.3	21.5	21.2	—	19.3	—	—	—
Colored	35.4	58.2	90.3	44.5	48.0	49.6	44.5	24.8	—	31.8	—	—	—
Maryland	—	—	—	—	—	—	19.7	—	—	—	—	—	—
White	—	—	—	—	—	—	16.5	—	—	—	—	—	—
Colored	—	—	—	—	—	—	36.5	—	—	—	—	—	—
Michigan	11.1	12.6	11.4	10.0	23.1	44.3	28.0	10.3	0.2	13.3	—	—	—
Minnesota	3.6	3.9	3.1	2.2	6.5	3.6	4.3	2.7	4.8	3.0	—	—	—
Mississippi	12.2	32.9	55.0	50.0	25.0	18.3	22.4	—	—	22.4	—	—	—
White	14.3	28.9	59.8	49.6	15.2	18.5	22.1	—	—	19.3	—	—	—
Colored	10.4	36.6	105.4	50.4	33.9	18.2	22.6	—	—	25.1	—	—	—
Montana	—	—	—	—	—	—	19.9	—	—	—	—	—	—
Nebraska	5.2	3.3	3.5	3.3	12.5	6.9	—	—	—	17.3	—	—	—
New Jersey	10.5	7.7	6.4	10.2	17.3	29.6	19.4	11.8	10.2	12.6	0.4	15.4	12.8
New York ¹	7.9	8.7	7.2	6.0	13.9	23.9	16.7	9.4	—	10.0	13.7	14.0	19.8
North Carolina	11.2	38.5	—	—	—	—	—	—	—	30.1	—	—	—
Pennsylvania	12.3	10.2	8.6	15.6	28.4	32.2	26.4	15.0	—	15.8	22.4	22.9	25.4
South Dakota	6.9	3.3	1.7	1.7	10.0	17.3	3.3	1.7	5.0	8.4	—	—	—
Tennessee	6.8	10.4	38.9	77.7	83.6	36.5	29.2	12.6	12.7	18.4	14.2	14.8	—
White	5.3	7.4	38.7	74.4	55.6	38.7	27.8	13.5	14.8	—	—	—	—
Colored	14.2	24.8	39.5	93.5	44.0	25.6	35.7	8.5	2.7	—	—	—	—
Virginia	3.3	12.3	37.8	50.3	37.0	27.9	16.5	11.8	9.6	7.3	—	—	—
White	3.3	6.3	18.9	41.7	32.9	26.8	17.1	10.4	7.0	4.4	—	—	—
Colored	3.4	28.1	85.5	72.8	48.0	30.8	14.9	15.4	16.5	14.9	—	—	—
Wisconsin	11.9	14.8	9.5	6.8	8.0	9.4	8.8	6.6	13.6	13.6	—	—	—

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Alabama	91.7	104.3	96.9	95.2	92.9	76.1	99.3	100.3	125.4	98.8	—	—	—
White	79.7	80.6	71.0	84.1	79.2	60.1	70.1	81.8	105.1	91.8	—	—	—
Colored	114.4	149.0	145.8	116.0	118.7	106.3	154.3	121.3	163.5	112.1	—	—	—
Arizona	53.9	39.7	30.8	39.7	32.3	35.9	22.4	33.4	49.7	44.7	—	—	—
California	123.2	106.7	108.7	98.5	91.0	84.9	101.0	104.1	—	130.1	—	—	—
Connecticut	68.2	116.2	54.9	46.6	35.2	56.3	70.3	60.8	—	67.1	—	—	—
Florida	—	—	—	—	—	—	124.3	123.3	—	—	—	—	—
White	—	—	—	—	—	—	100.8	118.0	—	—	—	—	—
Colored	—	—	—	—	—	—	175.9	135.0	—	—	—	—	—
Georgia	117.8	111.1	123.1	115.8	111.8	119.3	126.8	125.0	137.5	—	—	—	—
Indiana	95.0	92.7	74.3	73.8	63.8	70.9	—	83.5	87.1	96.4	74.8	75.4	72.3
Iowa	61.6	56.7	—	42.2	36.9	52.1	41.2	61.0	46.6	56.3	—	—	—
Kansas	94.8	93.0	92.8	77.6	69.9	80.2	75.7	100.1	—	108.7	—	—	—
Louisiana	112.3	115.9	120.4	99.0	108.7	106.7	118.3	121.0	—	124.2	—	—	—
White	84.8	79.3	90.6	82.1	88.6	90.6	94.2	101.2	—	90.2	—	—	—
Colored	162.8	183.3	175.2	130.2	145.6	136.3	162.7	157.5	—	169.9	—	—	—
Maryland	—	—	—	—	—	—	123.9	133.3	124.2	157.4	144.6	169.0	—
White	—	—	—	—	—	—	117.1	127.5	110.2	148.3	138.9	106.5	—
Colored	—	—	—	—	—	—	101.4	124.9	197.8	205.0	174.2	182.3	—
Michigan	73.4	67.4	72.6	69.8	62.6	62.8	61.0	50.9	78.7	82.3	—	—	—
Minnesota	54.1	49.7	48.7	42.4	39.4	40.2	46.7	57.7	63.6	71.4	—	—	—
Mississippi	112.1	70.3	117.5	106.6	92.0	99.9	120.8	—	—	112.4	—	—	—
White	89.6	101.2	74.1	84.1	74.5	68.4	99.3	—	—	78.6	—	—	—
Colored	128.5	132.7	147.0	127.2	108.1	128.5	139.5	—	—	143.3	—	—	—
Montana	—	—	—	—	—	—	68.7	—	—	—	—	—	—
Nebraska	57.0	51.0	51.8	56.9	51.8	45.8	—	—	—	31.1	—	—	—
New Jersey	104.4	102.6	101.3	85.7	78.0	89.8	99.5	93.0	112.5	118.9	111.5	108.5	109.2
New York ¹	124.1	111.0	103.4	91.0	99.3	94.7	102.8	99.8	—	99.6	112.2	113.0	128.0
Pennsylvania	102.3	105.8	88.6	83.9	80.7	85.4	98.4	102.6	—	109.3	97.8	106.0	105.0
South Dakota	31.1	35.1	36.3	38.5	51.9	32.8	30.1	41.5	38.5	63.6	—	—	—
Tennessee	77.3	69.2	71.0	73.9	69.6	76.4	73.9	72.0	83.3	—	—	—	—
White	67.5	62.5	69.8	57.9	60.2	64.5	60.2	64.5	75.5	—	—	—	—
Colored	125.1	101.8	125.1	151.2	115.4	133.5	140.2	113.6	120.9	—	—	—	—
Virginia	89.8	74.1	91.7	97.4	88.2	95.4	89.6	95.4	114.8	112.0	—	—	—
White	79.7	67.0	81.0	88.5	72.7	78.4	81.8	84.2	93.5	105.5	—	—	—
Colored	116.2	92.6	119.6	120.8	129.0	140.1	110.8	124.8	170.4	129.0	—	—	—

¹ Exclusive of New York City.² No deaths reported.

Monthly State mortality statistics—Continued

FEDERAL STATE (140-150)

	1929										Corresponding month for—			
	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.		1928	1927	1926	1925
Alabama.....	23.8	23.9	29.0	12.4	25.2	23.2	18.3	17.0	15.6		16.5	18.8	17.5	17.7
White.....	17.4	19.6	20.3	8.4	20.3	13.8	12.6	11.6	13.3		14.0	18.9	14.0	-----
Colored.....	35.4	31.6	45.0	19.8	34.3	40.9	29.0	27.2	19.8		21.1	18.4	23.7	-----
Arizona.....	12.8	12.4	12.8	5.0	14.9	7.7	5.0	2.6	5.0		7.5	-----	-----	-----
California.....	12.8	10.3	7.7	11.4	9.6	6.7	8.8	10.1	-----		7.7	-----	-----	-----
Connecticut.....	4.4	5.0	12.6	8.6	8.5	3.7	8.6	9.6	-----		6.0	8.4	13.3	5.6
Florida.....	-----	-----	-----	-----	-----	-----	20.0	17.2	-----		-----	-----	-----	-----
White.....	-----	-----	-----	-----	-----	-----	19.4	20.1	-----		-----	-----	-----	-----
Colored.....	-----	-----	-----	-----	-----	-----	21.3	11.0	-----		-----	-----	-----	-----
Georgia.....	14.8	19.5	13.3	13.2	18.0	22.0	18.7	15.6	18.4		-----	-----	-----	-----
Indiana.....	10.7	12.2	15.3	10.2	11.9	10.7	7.4	9.2	13.7		8.9	9.7	10.6	9.1
Iowa.....	10.5	8.2	-----	8.2	8.2	11.0	7.3	7.3	7.3		9.7	-----	-----	-----
Kansas.....	10.6	11.5	16.6	12.2	12.3	5.3	7.1	8.6	-----		12.6	-----	-----	-----
Louisiana.....	25.6	21.1	16.8	21.7	25.4	25.0	19.3	21.2	-----		20.0	-----	-----	-----
White.....	25.1	16.8	10.6	12.1	17.7	16.4	16.8	18.3	-----		21.2	-----	-----	-----
Colored.....	26.5	29.1	28.3	39.4	39.4	40.7	24.0	29.5	-----		17.7	-----	-----	-----
Maryland.....	-----	-----	-----	11.7	14.6	7.5	7.3	6.0	6.6		-----	-----	-----	-----
White.....	-----	-----	-----	8.7	13.0	6.3	5.2	5.4	6.9		-----	-----	-----	-----
Colored.....	-----	-----	-----	27.3	22.8	14.1	18.2	9.4	4.6		-----	-----	-----	-----
Michigan.....	17.2	11.0	13.5	16.9	10.0	10.6	11.0	10.9	12.6		12.3	-----	-----	-----
Minnesota.....	8.5	5.2	7.2	4.8	5.2	4.5	2.9	4.5	8.7		8.7	-----	-----	-----
Montana.....	-----	-----	-----	-----	-----	8.9	-----	-----	-----		-----	-----	-----	-----
Nebraska.....	6.9	10.9	14.7	10.0	6.7	9.5	-----	-----	-----		6.0	-----	-----	-----
New Jersey.....	10.5	10.2	8.9	9.2	10.8	8.9	8.0	8.3	9.6		-----	-----	-----	-----
New York.....	4.1	11.2	8.5	8.3	6.8	8.8	8.5	6.8	-----		8.7	11.5	7.9	10.0
South Dakota.....	15.6	6.7	6.9	13.4	11.7	8.6	13.4	6.9	5.0		10.0	-----	-----	-----
Tennessee.....	20.9	16.0	8.3	17.4	15.5	13.1	12.2	16.5	17.4		7.1	5.2	-----	-----
White.....	20.0	13.6	8.8	15.3	13.1	13.5	7.4	14.7	13.6		-----	-----	-----	-----
Colored.....	25.5	27.5	5.7	27.5	27.5	11.4	35.7	25.6	35.7		-----	-----	-----	-----
Virginia.....	15.1	17.8	13.7	13.3	18.3	9.0	10.1	6.6	13.7		18.3	-----	-----	-----
White.....	10.5	10.1	11.1	10.7	9.5	5.9	7.0	5.2	7.6		12.6	-----	-----	-----
Colored.....	27.3	38.0	20.5	19.9	23.2	17.1	18.2	10.3	29.8		33.1	-----	-----	-----

¹ Exclusive of New York City.

COURT DECISION RELATING TO PUBLIC HEALTH

Issuance by local registrar of certified copy of death certificate.—(Alabama Supreme Court; *Scott v. Culpepper*, 125 So. 643; decided Jan. 16, 1930.) The statute relating to the registration of births and deaths provided for the filing of death certificates with the local registrar and the entry of same by such registrar in a record book. It was required that this record book, when filled, be delivered by the local registrar to the probate judge for keeping as a permanent local record. Original certificates of births and deaths for any one month were not required to be transmitted by the local registrar to the State registrar until the 10th of the following month. Certified copies of the records of births and deaths registered could be obtained from the State registrar.

Other statutes gave a citizen a right to inspect and take a copy of any public writing, except as otherwise expressly provided, and also set forth that every public officer having the custody of a public writing, which a citizen had a right to inspect, was bound to give him a certified copy on demand and on payment of the legal fees.

A death certificate was filed and entered on the record book of a local registrar. On the same date and after its record, a certified

copy was demanded and the legal fee therefor tendered. In mandamus proceedings to compel the local registrar to issue such certified copy, the trial court dismissed the petition on the theory that such copy should be obtained either from the State registrar or from the office of the probate judge. But the supreme court, on appeal, pointed out that there could be a considerable period of time during which the local registrar was sole custodian of certificates and the record book in his office the sole record thereof. The supreme court held a local registrar to be a public officer and the record made by such registrar to be a public writing, and decided that the petitioner was entitled to a certified copy from the local registrar, saying:

The death certificate entered on the record book of the local registrar was a public writing in the custody of such registrar as a public officer, subject to inspection by any citizen, and to which a certified copy is due to be given upon demand and the payment of the legal fee therefor.

DEATHS DURING WEEK ENDED FEBRUARY 22, 1930

Summary of information received by telegraph from industrial insurance companies for the week ended February 22, 1930, and corresponding week of 1929. (From the Weekly Health Index, February 26, 1930, issued by the Bureau of the Census, Department of Commerce)

	Week ended Feb. 22, 1930	Corresponding week, 1929
Policies in force.....	75, 485, 684	73, 314, 879
Number of death claims.....	15, 322	14, 838
Death claims per 1,000 policies in force, annual rate.....	10. 6	10. 6

Deaths from all causes in certain large cities of the United States during the week ended February 22, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, February 26, 1930, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Feb. 22, 1930		Annual death rate per 1,000, corre- sponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Feb. 22, 1930 ¹
	Total deaths	Death rate ¹		Week ended Feb. 22, 1930	Corre- sponding week, 1929	
Total (62 cities).....	7, 961	14. 4	14. 5	795	803	122
Akron.....	42			4	6	37
Albany ⁴	39	18. 9	15. 6	3	0	66
Atlanta.....	71	14. 5	18. 2	11	8	116
White.....	34			4	3	127
Colored.....	37	(⁵)	(⁵)	7	5	111
Baltimore ⁴	240	15. 1	16. 5	19	21	65
White.....	185			12	15	52
Colored.....	55	(⁵)	(⁵)	7	6	113
Birmingham.....	67	15. 7	15. 0	7	10	65
White.....	31			3	4	46
Colored.....	36	(⁵)	(⁵)	4	6	95
Boston.....	260	17. 0	16. 2	28	30	79
Bridgeport.....	37			4	5	68

See footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended February 22, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929—Continued

City	Week ended Feb. 22, 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Feb. 22, 1930
	Total deaths	Death rate		Week ended Feb. 22, 1930	Corresponding week, 1929	
Buffalo.....	157	14.7	14.6	16	10	71
Cambridge.....	18	7.5	12.8	0	4	0
Camden.....	33	12.7	11.9	2	1	36
Canton.....	26	11.6	8.5	2	4	50
Chicago.....	812	13.4	12.7	84	61	74
Cincinnati.....	170			14	17	83
Cleveland.....	210	10.8	12.9	22	45	66
Columbus.....	77	13.4	16.6	7	7	68
Dallas.....	73	17.5	14.6	7	5	
White.....	61			6	4	
Colored.....	12	(¹)	(¹)	1	1	
Dayton.....	42	11.9	11.0	4	3	59
Denver.....	104	18.4	15.2	9	5	94
Des Moines.....	35	12.0	15.1	6	4	104
Detroit.....	413	15.6	13.1	70	56	108
Duluth.....	24	10.7	13.4	3	0	81
El Paso.....	34	15.0	19.0	3	13	
Erie.....	20			2	4	43
Fall River.....	44	17.1	15.1	6	5	157
Flint.....	26	0.1	14.7	8	4	93
Fort Worth.....	42	12.8	10.7	5	8	
White.....	31			3	3	
Colored.....	11	(¹)	(¹)	2	5	
Grand Rapids.....	37	11.7	11.4	2	2	30
Houston.....	87			3	10	
White.....	60			3	7	
Colored.....	27	(¹)	(¹)	0	3	
Indianapolis.....	128	17.5	15.1	5	7	37
White.....	100			5	6	43
Colored.....	19	(¹)	(¹)	0	1	0
Jersey City.....	86	13.8	16.5	3	14	26
Kansas City, Kans.....	37	16.3	19.0	6	4	142
White.....	25			4	4	105
Colored.....	12	(¹)	(¹)	2	0	435
Kansas City, Mo.....	115	15.3	15.4	6	11	47
Knoxville.....	27	13.4	8.4	3	2	70
White.....	20			2	2	52
Colored.....	7	(¹)	(¹)	1	0	247
Los Angeles.....	282			19	30	58
Louisville.....	91	14.4	16.8	6	9	52
White.....	67			3	8	30
Colored.....	24	(¹)	(¹)	3	1	217
Lowell.....	32			6	0	142
Lynn.....	24	11.9	13.8	2	2	51
Memphis.....	78	21.4	17.3	3	8	36
White.....	32			1	1	18
Colored.....	46	(¹)	(¹)	2	7	67
Minneapolis.....	91	10.4	13.2	10	15	65
Nashville.....	53	19.8	15.7	4	5	62
White.....	36			3	3	62
Colored.....	17	(¹)	(¹)	1	2	63
New Bedford.....	25			4	5	103
New Haven.....	56	15.5	10.5	3	6	58
New Orleans.....	162	19.7	24.2	10	20	58
White.....	84			4	10	35
Colored.....	78	(¹)	(¹)	6	10	101
New York.....	1,615	14.0	14.7	182	176	77
Bronx Borough.....	215	11.8	12.3	24	25	56
Brooklyn Borough.....	570	12.9	12.7	67	55	71
Manhattan Borough.....	637	19.0	20.2	74	69	121
Queens Borough.....	159	9.7	10.3	14	23	41
Richmond Borough.....	34	11.8	19.7	3	4	56
Newark, N. J.....	121	13.3	10.0	17	10	89
Oakland.....	50	9.5	14.3	4	6	48
Oklahoma City.....	49			8	8	157
Paterson.....	37	13.3	12.2	1	3	17
Philadelphia.....	596	15.1	14.0	45	52	67
Pittsburgh.....	217	16.8	16.4	31	16	114
Portland, Oreg.....	66			1	2	12
Providence.....	74	13.5	14.4	9	4	83

Deaths from all causes in certain large cities of the United States during the week ended February 22, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929—Continued

City	Week ended Feb. 22, 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Feb. 22, 1930
	Total deaths	Death rate		Week ended Feb. 22, 1930	Corresponding week, 1929	
Richmond.....	61	16.4	21.2	4	10	59
White.....	34			0	3	0
Colored.....	27	(¹)	(²)	4	7	175
Rochester.....	100	15.9	14.8	5	11	44
St. Louis.....	249	15.3	16.8	15	16	49
St. Paul.....	46			2	5	30
Salt Lake City.....	42	15.9	14.4	6	3	94
San Antonio.....	76	18.2	20.8	12	11	
San Diego.....	50			2	2	42
San Francisco.....	151	13.5	15.6	8	9	55
Schenectady.....	24	13.4	11.2	1	2	31
Seattle.....	84	11.4	11.4	3	6	30
Spokane.....	39	14.3	15.8	2	2	52
Springfield, Mass.....	44	15.3	15.3	5	1	79
Syracuse.....	52	13.6	16.0	5	3	62
Tacoma.....	28	12.3	12.3	3	2	77
Toledo.....	86	14.3	13.0	5	6	46
Trenton.....	42	15.8	16.1	5	5	93
Utica.....	34	17.0	16.0	4	1	114
Washington, D. C.....	165	15.6	15.2	22	14	128
White.....	105			16	7	138
Colored.....	60	(³)	(⁴)	6	7	106
Waterbury.....	25			5	3	128
Wilmington, Del.....	29	11.8	9.7	5	3	113
Worcester.....	70	18.5	16.9	9	7	117
Yonkers.....	20	8.6	12.9	1	5	24
Youngstown.....	32	9.6	9.9	1	4	16

¹ Annual rate per 1,000 population.

² Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.

³ Data for 70 cities.

⁴ Deaths for week ended Friday.

⁵ In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 23; Nashville, 30; New Orleans, 28; Richmond, 32; and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended February 22, 1930, and February 23, 1929

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended February 22, 1930, and February 23, 1929

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Feb. 22, 1930	Week ended Feb. 23, 1929	Week ended Feb. 22, 1930	Week ended Feb. 23, 1929	Week ended Feb. 22, 1930	Week ended Feb. 23, 1929	Week ended Feb. 22, 1930	Week ended Feb. 23, 1929
New England States:								
Maine	3	1	26	195	10	202	0	0
New Hampshire	1	2	4	40	36	13	0	0
Vermont	2	2		17	7	13	0	0
Massachusetts	75	62	6	169	447	285	3	1
Rhode Island	18	14		11	3	57	0	0
Connecticut	20	16	10	99	13	375	2	1
Middle Atlantic States:								
New York	130	237	130	126	575	834	17	36
New Jersey	86	107	15	52	445	194	7	5
Pennsylvania	161	115			781	1,190	14	10
East North Central States:								
Ohio	28	40	19	74	515	485	3	5
Indiana	38	21		133	29	404	23	0
Illinois	171	129	25	228	674	833	6	17
Michigan	67	57	17	25	482	342	20	20
Wisconsin	15	21	21	96	951	621	5	6
West North Central States:								
Minnesota	13	11		1	292	540	1	1
Iowa	12	20		111	732		2	2
Missouri	48	63	17	60	112	334	16	23
North Dakota	1	6			59	34	2	3
South Dakota	1	2		2	107	68	1	0
Nebraska	24	17		8	484	65	8	4
Kansas	11	17	7	70	437	315	3	0
South Atlantic States:								
Delaware	3				21	11	0	0
Maryland ¹	25	16	35	402	16	104	1	1
District of Columbia	21	18		28	15	8	0	0
West Virginia	4	16	38	140	58	195	2	0
North Carolina	37	36	36		14	118	9	2
South Carolina	11	21	985	922		1	3	0
Georgia	8	7	92	101	146	89	3	1
Florida	12	11	5	15	76	10	0	0

¹ New York City only.

² Week ended Friday.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended February 22, 1930, and February 23, 1929—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Feb. 22, 1930	Week ended Feb. 23, 1929	Week ended Feb. 22, 1930	Week ended Feb. 23, 1929	Week ended Feb. 22, 1930	Week ended Feb. 23, 1929	Week ended Feb. 22, 1930	Week ended Feb. 23, 1929
East South Central States:								
Kentucky.....		8		14		26	6	0
Tennessee.....	16	4	133	344	205	4	13	2
Alabama.....	27	44	120	891	167	177	3	3
Mississippi.....	16	4					22	0
West South Central States:								
Arkansas.....	5	7	80	653	9	57	2	1
Louisiana.....	9	29	38	107	118	84	4	0
Oklahoma ²	51	17	175	437	92	4	4	7
Texas.....	30	32	292	321	143	86	1	3
Mountain States:								
Montana.....	1	4		5	25	116	0	0
Idaho.....	2	4		3	22	1	2	6
Wyoming.....	2	1		7	13	11	0	0
Colorado.....	12	16		28	170	4	3	1
New Mexico.....	22	11	5	3	110	6	1	0
Arizona.....	9		14	3	2	5	5	8
Utah ²		4	1	5	160	1	5	10
Pacific States:								
Washington.....	14	17		20	193	135	5	2
Oregon.....	7	13	80	95	24	162	0	0
California.....	60	70	34	133	1,151	47	9	13

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Feb. 22, 1930	Week ended Feb. 23, 1929	Week ended Feb. 22, 1930	Week ended Feb. 23, 1929	Week ended Feb. 22, 1930	Week ended Feb. 23, 1929	Week ended Feb. 22, 1930	Week ended Feb. 23, 1929
New England States:								
Maine.....	0	0	60	9	0	4	2	0
New Hampshire.....	0	0	19	5	0	0	0	0
Vermont.....	0	0	8	5	4	4	0	1
Massachusetts.....	1	0	256	240	0	0	2	3
Rhode Island.....	0	0	39	18	0	0	0	2
Connecticut.....	0	0	131	56	0	2	1	0
Middle Atlantic States:								
New York.....	2	3	461	479	1	0	16	17
New Jersey.....	1	1	223	134	0	0	0	0
Pennsylvania.....	0	0	546	332	0	0	18	12
East North Central States:								
Ohio.....	2	0	284	187	175	50	8	3
Indiana.....	0	0	261	227	144	35	2	14
Illinois.....	2	1	604	448	113	131	4	11
Michigan.....	1	0	305	304	62	16	3	6
Wisconsin.....	1	2	145	152	36	12	3	1
West North Central States:								
Minnesota.....	1	0	131	139	5	5	3	3
Iowa.....	0	1	103	225	80	64	1	4
Missouri.....	0	0	135	119	76	50	1	3
North Dakota.....	1	0	28	44	15	0	0	0
South Dakota.....	0	0	23	21	39	22	0	0
Nebraska.....	0	0	103	105	67	30	0	1
Kansas.....	0	0	158	189	68	75	3	3
South Atlantic States:								
Delaware.....	1	0	16	1	0	0	0	0
Maryland ²	0	1	113	67	0	0	2	3
District of Columbia.....	0	0	24	25	0	0	0	0
West Virginia.....	0	0	45	24	15	9	5	8
North Carolina.....	1	2	56	46	16	19	2	2
South Carolina.....	0	0	12	8	1	3	16	3
Georgia.....	1	0	6	11	0	3	1	9
Florida.....	0	0	8	5	1	0	1	4

² Week ended Friday.

³ Figures for 1930 are exclusive of Oklahoma City and Tulsa and for 1929 are exclusive of Oklahoma City only.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended February 22, 1930, and February 23, 1929—Continued

Division and State	Pollomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Feb. 22, 1930	Week ended Feb. 23, 1929	Week ended Feb. 22, 1930	Week ended Feb. 23, 1929	Week ended Feb. 22, 1930	Week ended Feb. 23, 1929	Week ended Feb. 22, 1930	Week ended Feb. 23, 1929
East South Central States:								
Kentucky.....	0	0	62	55	14	21	0	0
Tennessee.....	1	0	22	34	15	2	6	4
Alabama.....	1	4	15	26	13	4	1	13
Mississippi.....	0	1	53	11	2	2	3	2
West South Central States:								
Arkansas.....	0	0	17	15	14	5	5	6
Louisiana.....	0	1	20	43	11	1	12	4
Oklahoma ¹	0	0	21	34	128	64	7	2
Texas.....	0	1	43	63	118	51	9	5
Mountain States:								
Montana.....	0	0	29	30	2	39	2	0
Idaho.....	0	0	5	8	2	24	1	2
Wyoming.....	0	0	18	19	16	4	0	0
Colorado.....	0	1	28	17	24	17	1	0
New Mexico.....	0	0	26	9	2	0	0	2
Arizona.....	0	0	9	3	18	1	10	2
Utah ²	0	0	6	5	1	3	1	0
Pacific States:								
Washington.....	0	1	50	26	82	80	14	0
Oregon.....	0	0	58	62	28	56	1	2
California.....	0	2	263	391	97	65	7	4

¹ Week ended Friday.

² Figures for 1930 are exclusive of Oklahoma City and Tulsa and for 1929 are exclusive of Oklahoma City only.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Menin- gococ- cus menin- gitis	Diph- theria	Infl- uenza	Ma- laria	Mea- sles	Pellag- ra	Polio- mye- litis	Scarlet fever	Small- pox	Ty- phoid fever
December, 1929										
Colorado.....	16	51	-----	-----	75	-----	3	180	105	9
Hawaii Territory.....	3	30	12	-----	23	-----	0	2	0	12
January, 1930										
Alabama.....	10	132	691	89	80	21	4	156	51	25
Colorado.....	15	24	5	-----	235	-----	1	144	120	7
Illinois.....	61	858	227	10	1,616	-----	4	2,442	625	45
Louisiana.....	20	161	126	22	172	7	0	89	27	44
Maryland.....	7	117	189	1	45	0	1	378	0	22
Massachusetts.....	20	563	49	1	1,133	2	4	1,497	0	24
Michigan.....	147	418	24	1	1,294	1	2	1,617	381	11
Minnesota.....	12	110	5	2	930	-----	1	581	35	21
Missouri.....	53	174	146	23	219	-----	0	416	210	17
Nevada.....	3	-----	-----	-----	33	-----	0	22	0	-----
New Hampshire.....	-----	18	27	-----	-----	-----	0	97	0	-----
New Mexico.....	6	49	11	3	368	2	3	45	12	7
New Jersey.....	25	529	67	1	932	-----	1	1,138	0	13
New York.....	70	649	-----	6	1,890	-----	5	2,075	58	59
North Carolina.....	18	250	149	-----	71	60	1	319	151	5
Ohio.....	45	306	111	2	2,962	-----	6	1,350	1,068	33
Oklahoma ¹	11	136	697	41	307	7	0	166	281	27
Pennsylvania.....	39	874	-----	-----	2,064	-----	1	2,077	8	59
Rhode Island.....	3	75	16	-----	7	-----	0	147	0	2
West Virginia.....	9	60	138	-----	325	-----	2	148	92	26

¹ Exclusive of Oklahoma City and Tulsa.

December, 1929		Dysentery:	
	Cases		Cases
Chicken pox:		Illinois.....	9
Colorado.....	549	Maryland.....	3
Hawaii Territory.....	30	Minnesota (amebic).....	3
Conjunctivitis, infectious:		New Jersey.....	1
Hawaii Territory.....	87	New York.....	4
Dysentery (amebic):		Oklahoma ¹	2
Hawaii Territory.....	1	German measles:	
German measles:		Colorado.....	12
Colorado.....	2	Illinois.....	68
Impetigo contagiosa:		Maryland.....	6
Hawaii Territory.....	7	Massachusetts.....	85
Leprosy:		New Jersey.....	207
Hawaii Territory.....	5	New Mexico.....	6
Lethargic encephalitis:		New York.....	331
Colorado.....	1	North Carolina.....	19
Mumps:		Ohio.....	17
Colorado.....	115	Pennsylvania.....	193
Hawaii Territory.....	37	Rhode Island.....	18
Tetanus:		Hookworm disease:	
Colorado.....	1	Louisiana.....	11
Hawaii Territory.....	3	Impetigo contagiosa:	
Trachoma:		Colorado.....	1
Hawaii Territory.....	434	Maryland.....	4
Whooping cough:		Lead poisoning:	
Colorado.....	106	Illinois.....	1
Hawaii Territory.....	7	New Jersey.....	4
		Ohio.....	27
January, 1930		Leprosy:	
Actinomycosis:		Michigan.....	1
Illinois.....	1	Lethargic encephalitis:	
Anthrax:		Alabama.....	1
New York.....	2	Illinois.....	6
Pennsylvania.....	1	Louisiana.....	2
Botulism:		Massachusetts.....	8
Colorado.....	3	Michigan.....	3
Chicken pox:		Minnesota.....	1
Alabama.....	331	New York.....	9
Colorado.....	361	Ohio.....	6
Illinois.....	2,180	Pennsylvania.....	2
Louisiana.....	67	Mumps:	
Maryland.....	452	Alabama.....	42
Massachusetts.....	1,697	Colorado.....	185
Michigan.....	1,609	Illinois.....	635
Minnesota.....	755	Louisiana.....	12
Missouri.....	306	Maryland.....	84
New Jersey.....	1,632	Massachusetts.....	1,005
New Mexico.....	114	Michigan.....	514
New York.....	3,515	Missouri.....	91
North Carolina.....	1,088	Nevada.....	1
Ohio.....	2,475	New Mexico.....	132
Oklahoma ¹	71	New York.....	2,103
Pennsylvania.....	4,065	Ohio.....	583
Rhode Island.....	128	Oklahoma ¹	84
West Virginia.....	216	Pennsylvania.....	1,305
Conjunctivitis:		Rhode Island.....	3
New Mexico.....	3	West Virginia.....	8
Oklahoma ¹	3	Ophthalmia neonatorum:	
Diarrhea:		Illinois.....	43
Maryland.....	2	Maryland.....	2
Diarrhea and enteritis (under 2 years):		Massachusetts.....	134
Ohio.....	21	Missouri.....	3

¹ Exclusive of Oklahoma City and Tulsa.

Ophthalmia neonatorum—Continued.

Cases

New Jersey.....	12
New York.....	8
North Carolina.....	2
Ohio.....	130
Oklahoma ¹	1
Pennsylvania.....	7
Paratyphoid fever:	
Illinois.....	1
New Jersey.....	1
New York.....	12
Psittacosis:	
Illinois.....	2
Maryland.....	14
Pennsylvania.....	3
Puerperal septicemia:	
Illinois.....	5
New York.....	8
Ohio.....	12
Pennsylvania.....	11
Rabies in animals:	
Illinois.....	3
Louisiana.....	13
Maryland.....	3
Missouri.....	19
New York ¹	18
North Carolina.....	2
Rhode Island.....	5
Rabies in man:	
North Carolina.....	2
Scabies:	
Maryland.....	5
Oklahoma.....	2
Septic sore throat:	
Illinois.....	15
Louisiana.....	4
Maryland.....	11
Massachusetts.....	45
Michigan.....	90
Missouri.....	14
New Mexico.....	1
New York.....	31
North Carolina.....	11
Ohio.....	52
Oklahoma ¹	19
Rhode Island.....	5
Tetanus:	
Illinois.....	5
Louisiana.....	1
Maryland.....	5
Missouri.....	1
New York.....	5
Pennsylvania.....	4
Trachoma:	
Illinois.....	3
Louisiana.....	2

Trachoma—Continued.

Cases

Maryland.....	5
Missouri.....	18
New York.....	1
Ohio.....	8
Oklahoma ¹	20
Trichinosis:	
Maryland.....	1
New Jersey.....	1
Tularaemia:	
Alabama.....	2
Illinois.....	19
Louisiana.....	1
Maryland.....	6
Minnesota.....	1
Missouri.....	4
North Carolina.....	3
Ohio.....	9
Pennsylvania.....	3
Typhus fever:	
Alabama.....	1
Undulant fever:	
Alabama.....	1
Illinois.....	2
Maryland.....	2
Massachusetts.....	3
Minnesota.....	3
Missouri.....	5
New Mexico.....	1
New York.....	9
Ohio.....	10
Pennsylvania.....	1
Vincent's angina:	
Colorado.....	1
Illinois.....	1
Maryland.....	6
New York.....	87
Whooping cough:	
Alabama.....	231
Colorado.....	66
Illinois.....	1,096
Louisiana.....	21
Maryland.....	146
Massachusetts.....	1,710
Michigan.....	820
Minnesota.....	174
Missouri.....	140
New Jersey.....	789
New Mexico.....	30
New York.....	2,171
North Carolina.....	1,198
Ohio.....	969
Oklahoma ¹	49
Pennsylvania.....	1,726
Rhode Island.....	103
West Virginia.....	270

¹ Exclusive of Oklahoma City and Tulsa.¹ Exclusive of New York City.

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 96 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 31,630,000. The estimated population of the 89 cities reporting deaths is more than 30,035,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended February 15, 1930, and February 16, 1929

	1930	1929	Estimated expectancy
<i>Cases reported</i>			
Diphtheria:			
46 States.....	1,994	1,568	-----
96 cities.....	687	733	909
Measles:			
43 States.....	9,890	9,502	-----
96 cities.....	2,656	2,451	-----
Meningococcus meningitis:			
47 States.....	281	255	-----
96 cities.....	100	136	-----
Poliomyelitis:			
47 States.....	23	17	-----
Scarlet fever:			
46 States.....	5,142	5,230	-----
96 cities.....	1,891	1,672	1,690
Smallpox:			
46 States.....	1,615	979	-----
96 cities.....	164	48	63
Typhoid fever:			
46 States.....	187	119	-----
96 cities.....	33	30	28
<i>Deaths reported</i>			
Influenza and pneumonia:			
89 cities.....	1,116	1,543	-----
Smallpox:			
89 cities.....	0	0	-----

City reports for week ended February 15, 1930

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1921 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chick- en pox, cases re- ported	Diphtheria		Influenza		Meas- les, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths re- ported
		Cases, esti- mated expect- ancy	Cases, re- ported	Cases re- ported	Deaths re- ported			
NEW ENGLAND								
Maine:								
Portland.....	14	1	0	1	0	0	20	1
New Hampshire:								
Concord.....	0	1	0		0	0	0	2
Manchester.....	0	1	0		0	0	0	1
Nashua.....	1	0	0		0	0	0	0
Vermont:								
Barre.....	0	0	0		0	4	0	0
Burlington.....	2	0	1		0	0	0	0
Massachusetts:								
Boston.....	67	46	21	4	0	104	82	40
Fall River.....	10	4	4	1	1	2	0	1
Springfield.....	8	4	5	1	1	0	3	5
Worcester.....	7	3	1		0	82	0	1
Rhode Island:								
Pawtucket.....	10	1	0		0	0	0	0
Providence.....	2	9	8		0	0	0	10
Connecticut:								
Bridgeport.....	2	7	1	3	0	0	0	5
Hartford.....	8	7	3	1	0	1	1	8
New Haven.....	73	1	0	1	0	2	19	7
MIDDLE ATLANTIC								
New York:								
Buffalo.....	18	14	8		2	3	2	31
New York.....	208	225	91	42	12	167	142	217
Rochester.....	15	9	0	2	0	5	1	7
Syracuse.....	26	3	0		1	0	47	9
New Jersey:								
Camden.....	3	6	5	1	1	2	0	5
Newark.....	65	17	18	10	0	134	10	17
Trenton.....	11	2	2		0	26	0	8
Pennsylvania:								
Philadelphia.....	103	73	25	9	8	54	51	85
Pittsburgh.....	28	22	22	2	7	77	5	40
Reading.....	21	2	2		0	1	3	3
Scranton.....	4	4	3		0	1	0	0
EAST NORTH CENTRAL								
Ohio:								
Cincinnati.....	17	10	2		1	1	0	14
Cleveland.....	120	33	15	22	3	4	35	20
Columbus.....	8	4	0	3	3	16	0	8
Toledo.....	49	7	2	2	2	264	8	7
Indiana:								
Fort Wayne.....	5	3	1		0	0	0	3
Indianapolis.....	17	8	4		0	8	2	14
South Bend.....	11	1	0		0	0	0	2
Terre Haute.....	4	1	2		0	0	0	4
Illinois:								
Chicago.....	114	100	110	10	13	17	53	78
Springfield.....	11	1	0	6	3	0	3	2

City reports for week ended February 15, 1930—Continued

Division, State, and city	Chick- en pox, cases re- ported	Diphtheria		Influenza		Meas- les, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths re- ported
		Cases, esti- mated expect- ancy	Cases, re- ported	Cases re- ported	Deaths re- ported			
EAST NORTH CENTRAL—CON.								
Michigan:								
Detroit	53	53	39	13	3	315	27	40
Flint	14	3	1		0	5	0	4
Grand Rapids	8	2	0		1	1	1	2
Wisconsin:								
Kenosha	5	1	0		0	0	1	0
Madison	7	0	0			90	1	
Milwaukee	195	19	0	1	1	23	46	11
Racine	3	3	0		0	1	2	2
Superior	0	0	0		0	13	0	2
WEST NORTH CENTRAL								
Minnesota:								
Duluth	2	0	0		0	64	1	2
Minneapolis	41	17	1		0	22	19	7
St. Paul	25	9	1		2	7	11	7
Iowa:								
Davenport	0	0	0			0	2	
Des Moines	0	3	2			0	0	
Sioux City	9	1	0			2	0	
Waterloo	14	1	2			176	0	
Missouri:								
Kansas City	0	6	0		1	4	2	11
St. Joseph	1	2	1		0	1	0	3
St. Louis	23	46	32	1		2	27	
North Dakota:								
Fargo	6	1	0		0	0	6	1
Grand Forks	1	0	0			0	0	
South Dakota:								
Aberdeen	6	0	0			0	1	
Nebraska:								
Omaha	12	4	17		0	56	1	0
Kansas:								
Topeka	18	2	1	1	1	79	6	2
Wichita	23	4	0		0	5	0	4
SOUTH ATLANTIC								
Delaware:								
Wilmington	2	2	1		0	0	0	6
Maryland:								
Baltimore	120	28	17	26	2	6	7	39
Cumberland	0	0	0		1	0	0	1
Frederick	0	1	0		0	0	0	1
District of Columbia:								
Washington	19	21	14	1	0	9	0	18
Virginia:								
Lynchburg	9	1	2		1	122	12	3
Norfolk	5	2	5		0	2	23	5
Richmond	7	4	6		3	0	1	8
Roanoke	0	1	4		0	5	1	5
West Virginia:								
Charleston	15	0	0		0	3	0	0
Wheeling	1	1	0		0	1	0	1
North Carolina:								
Raleigh	2	1	0		0	0	0	3
Wilmington	5	0	0		0	1	0	2
Winston-Salem	10	1	2	3	1	1	17	5
South Carolina:								
Charleston	3	0	0	31	1	0	6	1
Columbia	11	1	0		0	0	6	4
Georgia:								
Atlanta	8	3	2	43	5	5	15	13
Brunswick	0	1	0		0	0	3	1
Savannah	0	0	0	2	2	0	0	4
Florida:								
Miami	7	1	4		0	1	1	2
St. Petersburg		0			0			1
Tampa	10	2	3		0	14	8	1

City reports for week ended February 15, 1930—Continued

Division, State, and city	Chick- en pox, cases re- ported	Diphtheria		Influenza		Meas- les, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths re- ported
		Cases, esti- mated expect- ancy	Cases, re- ported	Cases re- ported	Deaths re- ported			
EAST SOUTH CENTRAL								
Kentucky:								
Covington.....	1	1	2		0	0	0	2
Tennessee:								
Memphis.....	11	3	0		5		28	8
Nashville.....	1	1	1		1	0	0	13
Alabama:								
Birmingham.....		3						
Mobile.....	1	1	2	3	0	3	0	1
Montgomery.....	28	1	1			34	0	
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith.....	0	0	0			1	0	
Little Rock.....	4	1	0		0	0	1	5
Louisiana:								
New Orleans.....	1	13	12	8	9	70	0	22
Shreveport.....	3	0	0		0	0	6	9
Oklahoma:								
Oklahoma City.....	1	3	1	3	3	2	0	6
Tulsa.....	11	1	5			181	0	
Texas:								
Dallas.....	10	6	13	2	1	127	3	10
Fort Worth.....	26	2	2		0	0	0	0
Galveston.....	1	1	0		0	0	0	3
Houston.....	4	5	8		0	0	1	13
San Antonio.....	1	3	6	1	9	1	0	10
MOUNTAIN								
Montana:								
Billings.....	0	0	0		0	0	0	1
Great Falls.....	1	1	0		0	0	20	0
Helena.....	0	0	0		0	0	31	0
Missoula.....	0	1	0		0	1	0	2
Idaho:								
Boise.....	0	0	0		0	0	0	2
Colorado:								
Denver.....		12						
Pueblo.....	6	1	0		0	0	29	2
New Mexico:								
Albuquerque.....	5	0	2		0	0	4	1
Arizona:								
Phoenix.....	2	0	2		0	1	3	3
Utah:								
Salt Lake City.....	20	3	0		1	52	16	3
Nevada:								
Reno.....	0	0	0		0	0	0	1
PACIFIC								
Washington:								
Seattle.....	47	5	2			59	67	
Spokane.....	19	3	2	3		0	0	
Tacoma.....	24	1	2		0	1	0	2
Oregon:								
Portland.....	18	8	6	4	1	2	15	10
Salem.....	6	0	0	1		1	12	
California:								
Los Angeles.....	94	41	13	40	4	34	34	26
Sacramento.....	4	2	0		0	3	39	4
San Francisco.....	47	16	18	2	3	467	81	11

City reports for week ended February 15, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- cul- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
NEW ENGLAND											
Maine:											
Portland.....	3	6	0	0	0	1	0	0	0	0	21
New Hampshire:											
Concord.....	0	0	0	0	0	0	0	0	0	0	11
Manchester.....	3	0	0	0	0	1	0	0	0	0	18
Nashua.....	1	1	0	0	0	0	0	0	0	0	
Vermont:											
Barre.....	0	0	0	3	0	2	0	0	0	1	4
Burlington.....	1	0	0	0	0	0	0	0	0	1	2
Massachusetts:											
Boston.....	84	78	0	0	0	12	1	0	0	70	252
Fall River.....	4	2	0	0	0	3	0	0	0	15	30
Springfield.....	10	4	0	0	0	0	0	0	0	21	39
Worcester.....	10	10	0	0	0	1	0	1	0	9	75
Rhode Island:											
Pawtucket.....	2	1	0	0	0	0	0	0	0	1	11
Providence.....	12	19	0	0	0	2	0	0	0	32	73
Connecticut:											
Bridgeport.....	14	15	0	0	0	4	0	0	0	0	42
Hartford.....	5	7	0	0	0	3	0	0	0	2	55
New Haven.....	11	16	0	0	0	0	0	0	0	12	39
MIDDLE ATLANTIC											
New York:											
Buffalo.....	30	30	0	0	0	6	1	0	0	8	141
New York.....	343	226	0	0	0	100	7	11	0	54	1,606
Rochester.....	11	18	0	0	0	2	0	0	0	4	78
Syracuse.....	15	30	0	0	0	0	0	0	0	30	51
New Jersey:											
Camden.....	7	6	0	0	0	1	1	0	0	1	29
Newark.....	38	49	0	0	0	8	1	0	0	20	140
Trenton.....	6	12	0	0	0	5	0	1	0	3	54
Pennsylvania:											
Philadelphia.....	103	118	0	0	0	33	2	0	0	33	553
Pittsburgh.....	41	24	0	0	0	11	0	1	0	43	217
Reading.....	7	2	0	0	0	0	0	0	0	25	30
Scranton.....	4	4	0	0	0	0	0	0	0	1	
EAST NORTH CENTRAL											
Ohio:											
Cincinnati.....	21	35	1	0	0	7	0	0	0	7	127
Cleveland.....	50	75	1	0	0	18	1	1	0	46	216
Columbus.....	11	8	1	8	0	8	0	0	0	4	70
Toledo.....	13	3	0	2	0	10	0	1	0	2	85
Indiana:											
Fort Wayne.....	5	4	0	11	0	0	0	2	0	2	29
Indianapolis.....	13	27	8	4	0	6	0	0	0	4	
South Bend.....	3	9	1	1	0	1	0	0	0	0	23
Terre Haute.....	3	1	0	1	0	0	0	0	0	0	
Illinois:											
Chicago.....	137	304	3	2	0	45	3	0	0	66	771
Springfield.....	4	0	0	2	0	0	1	0	0	3	29
Michigan:											
Detroit.....	113	140	2	11	0	25	0	1	0	71	308
Flint.....	14	20	0	12	0	4	1	0	0	9	32
Grand Rapids.....	13	16	0	0	0	0	0	0	0	4	44
Wisconsin:											
Kenosha.....	2	13	1	0	0	0	0	0	0	4	10
Madison.....	5	6	0	1	0	0	0	0	0	20	
Milwaukee.....	40	38	1	1	0	11	0	1	0	8	130
Racine.....	5	5	0	0	0	1	0	0	0	17	22
Superior.....	4	4	0	0	0	0	0	0	0	0	10
WEST NORTH CENTRAL											
Minnesota:											
Duluth.....	10	1	0	2	0	0	0	0	0	4	20
Minneapolis.....	59	15	4	0	0	2	0	1	0	11	91
St. Paul.....	36	23	1	0	0	5	0	0	0	18	60

City reports for week ended February 15, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis, deaths reported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, estimated expect- ancy	Cases re- ported	Cases, estimated expect- ancy	Cases re- ported	Deaths re- ported		Cases, estimated expect- ancy	Cases re- ported	Deaths re- ported		
WEST NORTH CEN- TRAL—continued											
Iowa:											
Davenport	2	0	1	26			0	0		0	
Des Moines	9	18	2	4			0	0		0	31
Sioux City	1	6	0	1			0	0		3	
Waterloo	2	0	1	12			0	0		0	
Missouri:											
Kansas City	18	41	2	0	0	10	0	1	0	7	111
St. Joseph	3	2	0	1	0	2	0	0	0	0	
St. Louis	47	44	2	4	0	12	1	2	0	19	265
North Dakota:											
Fargo	2	2	0	0	0	0	0	0	0	7	2
Grand Forks	1	4	0	2			0	0		0	
South Dakota:											
Aberdeen	2	0	0	1			0	0		2	
Nebraska:											
Omaha	5	6	2	2	0	0	0	1	0	1	59
Kansas:											
Topeka	2	4	1	2	0	1	0	0	0	11	16
Wichita	6	27	1	1	0	1	0	0	0	15	35
SOUTH ATLANTIC											
Delaware:											
Wilmington	5	8	0	0	0	2	0	0	0	3	48
Maryland:											
Baltimore	35	55	0	0	0	16	1	2	0	11	238
Cumberland	1	1	0	0	0	0	0	0	0	0	13
Frederick	0	0	0	0	0	0	0	0	0	0	3
District of Colum- bia:											
Washington	26	22	1	0	0	11	1	0	0	14	149
Virginia:											
Lynchburg	0	2	0	0	0	0	0	0	0	2	13
Norfolk	3	4	0	0	0	1	0	0	0	6	
Richmond	4	10	0	0	0	4	0	0	0	0	55
Roanoke	1	2	0	0	0	0	0	0	0	0	27
West Virginia:											
Charleston	2	1	0	1	0	1	0	1	0	8	9
Wheeling	2	0	0	0	0	1	0	0	0	1	22
North Carolina:											
Raleigh	1	1	0	2	0	1	0	0	0	0	33
Wilmington	0	0	0	0	0	0	0	0	0	3	11
Winston-Salem	1	5	0	0	0	2	0	0	0	8	21
South Carolina:											
Charleston	1	0	0	0	0	1	0	0	0	4	25
Columbia	0	0	0	0	0	0	0	0	0	19	13
Georgia:											
Atlanta	5	16	4	0	0	14	0	1	0	0	109
Brunswick	0	0	0	0	0	0	0	0	0	0	5
Savannah	1	0	0	0	0	3	0	0	0	0	29
Florida:											
Miami	3	0	0	0	0	0	0	1	0	1	35
St. Petersburg	0		0		0	0			0		19
Tampa	0	3	0	0	0	1	1	0	0	0	24
EAST SOUTH CEN- TRAL											
Kentucky:											
Covington	2	6	0	4	0	0	0	0	0	0	15
Tennessee:											
Memphis	7	12	1	0	0	3	0	0	0	7	101
Nashville	3		0	0	0	4	0	1	2	2	46
Alabama:											
Birmingham	2		4								
Mobile	0	0	0	0	0	5	0	0	0	1	26
Montgomery	1	5	1	0			0	0		2	
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	1	1	0	0			0	0		0	
Little Rock	2	1	0	0	0	2	0	0	0	0	
Louisiana:											
New Orleans	7	10	0	0	0	12	3	1	0	0	181
Shreveport	0	0	0	6	0	0	0	0	0	0	38

City reports for week ended February 15, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
WEST SOUTH CENTRAL—continued											
Oklahoma:											
City.....	2	5	2	10	0	1	0	0	0	0	45
Tulsa.....	2	2	1	5			0	0		15	
Texas:											
Dallas.....	4	12	3	6	0	5	0	0	0	3	65
Fort Worth.....	1	8	3	0	0	0	0	0	0	0	
Galveston.....	0	0	0	0	0	0	0	0	0	0	14
Houston.....	2	5	3	8	0	1	0	1	0	0	72
San Antonio.....	2	2	0	8	0	8	0	0	0	0	79
MOUNTAIN											
Montana:											
Billings.....	0	2	1	0	0	0	0	0	0	0	8
Great Falls.....	2	20	0	0	0	0	0	0	0	0	6
Helena.....	0	0	0	0	0	0	0	0	0	1	1
Missoula.....	0	0	0	2	0	0	0	0	0	0	4
Idaho:											
Boise.....	1	5	1	0	0	0	0	0	0	2	8
Colorado:											
Denver.....	13		0				0				
Pueblo.....	1	0	0	1	0	0	0	0	0	1	15
New Mexico:											
Albuquerque.....	1	1	0	0	0	4	0	1	0	0	12
Arizona:											
Phoenix.....	1	7	0	1	0	3	0	0	0	0	14
Utah:											
Salt Lake City.....	3	5	1	1	0	0	0	0	1	34	38
Nevada:											
Reno.....	0	3	0	0	0	0	0	0	0	0	3
PACIFIC											
Washington:											
Seattle.....	11	34	3	5			1	0		6	
Spokane.....	7	0	9	22			0	0		21	
Tacoma.....	2	7	3	10	0	0	0	0	0	5	31
Oregon:											
Portland.....	7	3	15	8	0	3	0	1	0	8	94
Salem.....	0	0	1	1	0	0	0	0	0	8	
California:											
Los Angeles.....	40	46	2	2	0	30	1	0	0	20	265
Sacramento.....	2	5	0	2	0	3	0	0	0	0	22
San Francisco.....	22	41	1	3	0	9	0	2	0	1	171

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)			
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths	
NEW ENGLAND										
Massachusetts:										
Boston.....	2	0	1	0	0	0	0	0	0	0
Springfield.....	1	0	0	0	0	0	0	0	0	0
Rhode Island:										
Providence.....	0	1	1	0	0	0	0	0	0	0
MIDDLE ATLANTIC										
New York:										
New York.....	14	7	1	0	0	0	1	0	0	0
Rochester.....	0	0	0	0	0	0	0	1	0	0
Syracuse.....	1	0	0	0	0	0	0	0	0	0
New Jersey:										
Newark.....	2	0	0	0	0	0	0	0	0	0
Pennsylvania:										
Philadelphia.....	3	3	1	0	0	0	0	0	0	0
Pittsburgh.....	0	1	0	0	0	0	0	0	0	0

City reports for week ended February 15, 1930—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
EAST NORTH CENTRAL									
Ohio:									
Cincinnati.....	3	1	0	0	0	0	0	0	0
Cleveland.....	3	2	2	1	0	0	0	0	0
Indiana:									
Indianapolis.....	0	0	0	0	0	0	0	0	0
South Bend.....	1	0	0	0	0	0	0	0	0
Illinois:									
Chicago.....	5	6	0	0	0	0	1	3	0
Springfield.....	1	0	0	0	0	0	0	0	0
Michigan:									
Detroit.....	11	6	0	0	1	1	0	0	0
Flint.....	1	0	0	0	0	0	0	0	0
Grand Rapids.....	1	1	0	0	0	0	0	0	0
Wisconsin:									
Milwaukee.....	1	2	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Minneapolis.....	1	0	0	0	0	0	0	0	0
St. Paul.....	0	0	1	0	0	0	0	0	0
Missouri:									
Kansas City.....	11	7	0	0	0	0	0	0	0
St. Louis.....	6	4	0	0	0	0	0	0	0
Nebraska:									
Omaha.....	1	0	0	0	0	0	0	0	0
SOUTH ATLANTIC									
Maryland:									
Baltimore.....	0	0	0	1	0	0	0	0	0
District of Columbia:									
Washington.....	1	1	1	1	0	0	0	1	0
Virginia:									
Richmond.....	0	1	0	0	0	0	0	0	0
North Carolina:									
Raleigh.....	0	0	0	0	0	2	0	0	0
Winston-Salem.....	0	0	0	0	2	0	0	0	0
South Carolina:									
Charleston.....	0	0	0	0	3	0	0	0	0
Columbia.....	1	0	0	0	0	1	0	0	0
Georgia:									
Atlanta.....	8	3	0	0	1	1	0	0	0
Florida:									
Miami ¹	0	0	0	0	0	1	0	0	0
St. Petersburg.....	0	0	0	1	0	0	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis.....	2	8	0	0	0	0	0	0	0
Alabama:									
Mobile.....	1	1	0	0	0	0	0	0	0
WEST SOUTH CENTRAL									
Louisiana:									
New Orleans.....	1	1	0	0	0	0	0	0	0
Shreveport.....	0	0	0	0	0	1	0	0	0
Oklahoma:									
Oklahoma City.....	0	0	0	1	0	0	0	0	0
Tulsa.....	1	0	0	0	0	0	0	0	0
Texas:									
Galveston.....	0	0	0	0	0	1	0	0	0
MOUNTAIN									
New Mexico:									
Albuquerque.....	0	1	0	0	0	0	0	0	0
Utah:									
Salt Lake City.....	1	0	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle.....	2	0	0	0	0	0	0	0	0
Spokane.....	2	0	0	0	0	0	0	0	0
California:									
Los Angeles.....	1	2	0	1	0	0	0	0	0
Sacramento.....	1	1	0	0	0	0	0	0	0
San Francisco.....	1	1	0	0	0	0	0	0	0

¹ Typhus fever; 1 case at Miami, Fla.

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended February 15, 1930, compared with those for a like period ended February 16, 1929. The population figures used in computing the rates are approximate estimates, authoritative figures for many of the cities not being available. The 98 cities reporting cases have an estimated aggregate population of more than 32,000,000. The 91 cities reporting deaths have more than 30,500,000 estimated population.

*Summary of weekly reports from cities, January 12 to February 15, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929*¹

DIPHTHERIA CASE RATES

	Week ended—									
	Jan. 18, 1930	Jan. 19, 1929	Jan. 25, 1930	Jan. 26, 1929	Feb. 1, 1930	Feb. 2, 1929	Feb. 8, 1930	Feb. 9, 1929	Feb. 15, 1930	Feb. 16, 1929
98 cities.....	110	² 132	³ 114	125	⁴ 115	109	⁵ 95	117	⁶ 97	121
New England.....	122	177	146	200	⁷ 128	108	⁷ 112	117	95	130
Middle Atlantic.....	94	158	96	136	⁸ 103	133	97	141	83	147
East North Central.....	127	⁹ 107	145	122	140	106	103	113	115	115
West North Central.....	108	146	82	115	¹⁰ 47	90	¹⁰ 94	146	104	150
South Atlantic.....	103	99	106	79	106	107	70	67	93	73
East South Central.....	67	171	74	137	94	68	81	82	¹¹ 58	82
West South Central.....	205	76	157	114	232	95	108	114	146	114
Mountain.....	51	61	¹² 51	52	¹² 34	70	¹² 34	78	¹² 0	44
Pacific.....	94	104	92	92	¹³ 68	65	43	68	87	77

MEASLES CASE RATES

98 cities.....	208	¹ 218	² 227	261	³ 221	274	⁴ 329	252	⁵ 421	404
New England.....	157	700	210	667	⁶ 323	514	⁷ 305	561	432	541
Middle Atlantic.....	124	70	117	86	⁸ 160	93	186	129	224	114
East North Central.....	152	⁹ 303	137	381	168	418	172	66	253	761
West North Central.....	364	423	457	627	¹⁰ 604	779	¹⁰ 695	1,193	793	983
South Atlantic.....	167	84	157	84	287	103	245	133	306	135
East South Central.....	40	34	27	27	61	7	81	14	¹¹ 357	41
West South Central.....	400	11	624	34	314	34	695	34	743	50
Mountain.....	240	853	¹² 377	871	¹² 462	697	¹² 479	1,341	¹² 908	1,019
Pacific.....	676	56	730	75	¹³ 124	99	1,200	135	1,450	164

SCARLET FEVER CASE RATES

98 cities.....	278	¹ 225	² 295	230	³ 305	232	⁴ 327	246	⁵ 312	277
New England.....	363	294	419	317	⁶ 321	303	⁷ 479	305	350	373
Middle Atlantic.....	223	183	239	217	⁸ 252	190	274	186	246	222
East North Central.....	308	⁹ 258	379	262	420	280	432	318	438	340
West North Central.....	260	248	307	296	¹⁰ 346	306	¹⁰ 332	312	324	360
South Atlantic.....	198	122	176	114	205	131	203	146	231	157
East South Central.....	101	232	169	232	162	157	216	246	¹¹ 222	260
West South Central.....	134	183	105	90	78	145	138	232	116	255
Mountain.....	335	183	¹² 479	104	¹² 616	61	¹² 411	113	¹² 599	87
Pacific.....	276	377	402	258	¹³ 367	350	338	304	314	328

¹ The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1930 and 1929, respectively.

² South Bend, Ind., not included.

³ Denver, Colo., not included.

⁴ Portland, Me., Buffalo, N. Y., St. Louis, Mo., Denver, Colo., and San Francisco, Calif., not included.

⁵ Portland, Me., Kansas City, Mo., and Denver, Colo., not included.

⁶ Birmingham, Ala., and Denver, Colo., not included.

⁷ Portland, Me., not included.

⁸ Buffalo, N. Y., not included.

⁹ St. Louis, Mo., not included.

¹⁰ Kansas City, Mo., not included.

¹¹ Birmingham, Ala., not included.

¹² San Francisco, Calif., not included.

Summary of weekly reports from cities, January 12 to February 15, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929—Continued

SMALLPOX CASE RATES

	Week ended—									
	Jan. 18, 1930	Jan. 19, 1929	Jan. 25, 1930	Jan. 26, 1929	Feb. 1, 1930	Feb. 2, 1929	Feb. 8, 1930	Feb. 9, 1929	Feb. 15, 1930	Feb. 16, 1929
98 cities.....	33	¹ 7	² 25	8	⁴ 33	7	¹ 30	5	¹ 27	8
New England.....	0	0	4	0	¹ 0	0	² 2	0	7	0
Middle Atlantic.....	0	0	1	0	⁰ 0	0	0	0	0	0
East North Central.....	36	¹ 6	19	8	39	10	34	8	23	15
West North Central.....	121	13	70	2	⁵ 53	8	¹⁰ 69	2	47	0
South Atlantic.....	5	6	2	7	5	11	4	0	5	2
East South Central.....	0	7	0	14	13	7	0	0	¹¹ 39	0
West South Central.....	41	46	37	46	78	27	101	50	105	23
Mountain.....	51	17	³ 34	61	¹ 86	78	³ 34	26	² 68	70
Pacific.....	144	17	177	19	¹² 244	7	146	7	104	24

TYPHOID FEVER CASE RATES

	6	¹ 4	¹ 4	4	¹ 5	4	¹ 4	5	¹ 5	5
98 cities.....	4	4	0	2	¹ 0	2	¹ 0	2	2	4
New England.....	3	4	5	2	¹ 5	4	3	4	6	4
Middle Atlantic.....	3	¹ 3	3	4	3	1	5	3	3	2
East North Central.....	11	2	2	4	¹ 6	6	¹² 2	2	9	12
West North Central.....	5	6	7	2	7	7	11	6	7	6
South Atlantic.....	13	21	30	7	7	0	20	7	¹¹ 10	14
East South Central.....	7	8	4	23	4	8	7	27	7	11
West South Central.....	60	0	¹ 17	0	¹ 17	0	¹ 0	9	¹ 0	0
Mountain.....	5	2	2	10	¹² 20	7	2	7	5	7
Pacific.....	5	2	2	10	¹² 20	7	2	7	5	7

INFLUENZA DEATH RATES

	19	¹ 183	¹ 22	131	¹¹ 18	84	¹ 14	58	¹ 20	54
91 cities.....	9	141	9	204	⁷ 2	141	⁷ 5	90	4	56
New England.....	15	132	14	134	¹ 16	83	11	58	15	44
Middle Atlantic.....	17	¹ 148	17	70	13	48	13	28	18	36
East North Central.....	27	123	18	69	18	45	¹⁰ 19	51	12	35
West North Central.....	22	285	31	182	11	114	11	92	29	60
South Atlantic.....	44	948	59	619	59	298	37	127	¹¹ 66	224
East South Central.....	66	320	111	199	88	168	54	102	73	182
West South Central.....	26	157	¹ 0	70	¹ 17	35	¹ 17	78	¹ 17	87
Mountain.....	15	75	18	44	¹² 5	41	9	41	21	41
Pacific.....	15	75	18	44	¹² 5	41	9	41	21	41

PNEUMONIA DEATH RATES

	155	¹ 366	¹ 142	327	¹¹ 171	273	¹ 176	290	¹ 174	222
91 cities.....	115	442	126	465	⁷ 181	507	⁷ 151	384	177	303
New England.....	167	446	135	454	¹ 165	360	190	268	202	254
Middle Atlantic.....	109	¹ 280	111	184	129	170	139	133	129	183
East North Central.....	207	241	148	160	160	189	¹⁰ 146	186	100	180
West North Central.....	170	474	196	388	218	268	198	240	196	243
South Atlantic.....	162	455	221	358	272	209	236	194	¹¹ 263	164
East South Central.....	237	383	310	297	314	191	291	191	276	211
West South Central.....	249	200	¹ 171	187	¹ 206	148	¹ 274	235	¹ 188	244
Mountain.....	169	119	95	123	¹² 167	113	160	129	132	123
Pacific.....	169	119	95	123	¹² 167	113	160	129	132	123

² South Bend, Ind., not included.

³ Denver, Colo., not included.

⁴ Portland, Me., Buffalo, N. Y., St. Louis, Mo., Denver, Colo., and San Francisco, Calif., not included.

⁵ Portland, Me., Kansas City, Mo., and Denver, Colo., not included.

⁶ Birmingham, Ala., and Denver, Colo., not included.

⁷ Portland, Me., not included.

⁸ Buffalo, N. Y., not included.

⁹ St. Louis, Mo., not included.

¹⁰ Kansas City, Mo., not included.

¹¹ Birmingham, Ala., not included.

¹² San Francisco, Calif., not included.

¹³ Portland, Me., Buffalo, N. Y., Denver, Colo., and San Francisco, Calif., not included.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Week ended February 8, 1930.—The Department of Pensions and National Health reports cases of certain communicable diseases from eight Provinces of Canada for the week ended February 8, 1930, as follows:

Province	Cerebro-spinal fever	Influenza	Poliomyelitis	Small-pox	Typhoid fever
Prince Edward Island ¹					
Nova Scotia ¹					
Quebec	1		2		5
Ontario	1	20		12	2
Manitoba	1			3	1
Saskatchewan			1	22	
Alberta				8	1
British Columbia	1			3	5
Total	4	20	3	48	14

¹ No case of any disease included in the table was reported during the week.

Quebec Province—Communicable diseases—Week ended February 15, 1930.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended February 15, 1930, as follows:

Disease	Cases	Disease	Cases
Chicken pox	76	Poliomyelitis	1
Diphtheria	45	Puerperal fever	3
German measles	12	Scarlet fever	103
Influenza	6	Tuberculosis	48
Measles	212	Typhoid fever	10
Mumps	142	Whooping cough	121

CHINA

Meningitis.—During the week ended February 15, 1930, 8 cases of meningitis were reported in Shanghai, China.

DENMARK

Communicable diseases—December, 1929.—During the month of December, 1929, cases of communicable diseases were reported in Denmark as follows:

Disease	Cases	Disease	Cases
Broncho-pneumonia.....	1,567	Paratyphoid fever.....	6
Cerebrospinal meningitis.....	8	Pneumonia.....	292
Chicken pox.....	72	Poliomyelitis.....	13
Diphtheria and croup.....	619	Puerperal fever.....	8
Erysipelas.....	263	Scabies.....	896
German measles.....	9	Scarlet fever.....	193
Influenza.....	3,064	Tetanus.....	2
Jaundice.....	185	Tuberculosis.....	169
Lethargic encephalitis.....	11	Typhoid fever.....	3
Measles.....	588	Undulant fever ¹	37
Mumps.....	1,683	Whooping cough.....	825

¹ Reported from the State Serum Institute.

MEXICO

Meningitis.—According to recent information, an epidemic of cerebrospinal meningitis is prevailing in northern Sonora. Cases to February 20, 1930, were reported in the following districts: Cananea 7, Hermosillo 4, Nogales 1, El Plomo 10, Cumtás 6, Sahuarita 9. Seven deaths had been reported. The State Government of Sonora has sent physicians and medicine to outlying regions to combat the disease.

TRINIDAD (BRITISH WEST INDIES)

Port of Spain—Vital statistics (comparative)—January, 1930.—The following statistics for the month of January for the years 1926 to 1930 are taken from a report issued by the Public Health Department of Port of Spain, Trinidad:

January

	1926	1927	1928	1929	1930
Number of births.....	164	154	159	177	157
Birth rate per 1,000 population.....	30.2	27.9	28.8	31.9	27.8
Number of deaths.....	140	126	141	119	135
Death rate per 1,000 population.....	25.8	22.8	25.5	21.4	23.9
Deaths under 1 year.....	28	22	25	16	35
Infant mortality rate per 1,000 births.....	170.7	141.6	157.0	90.4	222.9

VIRGIN ISLANDS

Communicable diseases—January, 1930.—During the month of January, 1930, cases of certain communicable diseases were reported in the Virgin Islands, as follows:

St. Thomas and St. John:	Cases	St. Croix:	Cases
Gonorrhea.....	2	Chicken pox.....	1
Malaria.....	1	Gonorrhea.....	3
Syphilis.....	9	Syphilis.....	2
Tuberculosis (chronic pulmonary).....	1		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From medical officers of the Public Health Service, American consuls, International Office of Public Hygiene, Pan American Sanitary Bureau, health section of the League of Nations, and other sources. The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA

[C Indicates cases; D, deaths; P, present]

Place	Week ended—											
	November, 1929			December, 1929			January, 1930			February, 1930		
	23	30	7	14	21	28	4	11	18	25	1	8
China:												
Anoy	1											
Canton	5	1										
Hankow	3	1										
Manchuria												
Kwantung-Dairen	1											
Newchwang												
Nanking		P										
Peking	1,300	984	35									
Shanghai	93	69	11									
Szechwan	12	37	12									
Swatow												
Tientsin		P										
Chosen: Chemulpo	41,000	26,896	16,667	10,354	17,340	4,320	5,267	4,937	5,052	4,619		
India	24,005	16,667	10,651	10,651	10,650	2,458	3,156	2,491	2,796	2,602		
Bombay	6											
Russell	2											
Calcutta	170	135	150	252	252	85	55	60	65	40	38	15
Karachi	106	59	70	129	129	45	29	40	28	27	9	45
Madras	10	11									28	41
Nepal											21	
Nepalistan												
Rangoon												
Tuticorin												

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAQUE												
[C indicates cases; D, deaths; P, present]												
Place	Week ended—											
	December, 1929		January, 1930					February, 1930				
	21	28	4	11	18	25	1	8	15			
Algeria:												
Aigiers.....	O		2									
Philippeville....	O	3										
Argentina:												
Rosario.....	O											
Plague-infected rats.												
Santa Fe.....	O			3								
Tucuman.....	O			1								
Azores: Ponta Delgada	O			1								
Belgian Congo: Djugu	O	1	2									
Brazil:	D	1	2									
Rio de Janeiro.....	D											
Sao Paulo.....	D											
British East Africa (see also table below): Uganda.....	O	840	528	405	336	281	42	33	33			
Ceylon:	D	730	556	343	310	262	40	26	32			
Colombo.....	D		1	3	5	5	1	1				
Plague-infected rats.	D		1	1	1	4						
Galle.....	O	1	7	1	1	1						
Kandy.....	D		8	1								
Chile: Antofagasta	D	1	1	1								
China:	D	1	1									
Anmy.....	O	P	P	P								
Foochow.....	O	P	P	P								
Hong Kong.....	O	1	1									
Plague-infected rats	D	2	2									
Manila: Tungkillo District	O	16										
Dutch East Indies:												
Batavia and West Java.	O	122	180	131	265	340	65					
Plague-infected rats	D	131	178	128	262	353	61					
					1	8						
							2					

21 cases of plague with 8 deaths were reported Jan. 29, 1930, in the State of Sao Paulo, Brazil. 13 of these cases were in the city of Sao Paulo.

[illegible]

S. S. Chaban, at Port Said, from Jaffa.
Steamship at Porto Novo, from Lagos.
At Rio de Janeiro, Brazil, from Argentina.

Place	Aug- ust, 1929	Sept- tem- ber, 1929	Octo- ber, 1929	No- vem- ber, 1929	De- cem- ber, 1929	Janu- ary, 1930
British East Africa (see also table above):						
Kenya.....	C 19					
Uganda.....	C 865					
Ecuador: Guayaquil.....	C 6	23	146	157	15	
Plague-infected rats.....	C 1	7	12	170	105	
Greece (see also table above).....	C 4	3	4	164	94	
Indo-China (see also table above).....	C 2	5	5	14	17	
Madagascar (see also table above).....	C 1	2	2	1	1	
Ambohitra Province.....	C 48	195	233	182	10	4
Antsirabe Province.....	C 46	182	193	163		
Itasy Province.....	C 9	9	2	42		
Majunga Province.....	C 9	9	2	33		
Marinarivo.....	C 1	13	17	5		
Antsirabe Province.....	C 1	13	17	5		
Itasy Province.....	C 5	5	10	10		
Majunga Province.....	C 2	5	10	10		
Marinarivo.....	C 2	11	12	5		
Madagascar—Continued.						
Moramanga Province.....	C 2	2	5	27	4	
Tamatave Province.....	C 1	4	7	27	3	
Tananarive Province.....	C 36	141	141	141	103	
Peru.....	C 34	135	132	93		
Senegal:						
Baol.....	C 32	42	45	23	5	
Dakar.....	C 76	26	3	17	8	
Loaga.....	C 121	108	41	5	1	
Rufisque.....	C 70	64	24	1		
Thies.....	C 53	34	3			
Tivissane.....	C 188	119	41	8	1	
Tivissane.....	C 119	55	21	4		

Incomplete reports.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX

[C indicates cases; D, deaths; P, present]

[illegible]

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; F, present]

Place	Week ended—											
	December, 1929			January, 1930			February, 1930					
	21	28	4	11	18	25	1	8	15			
Great Britain:												
England and Wales	502	406	490	643	904							
Aberdeen	3				6							
Bristol					20							
Cardiff	1	8	6	13	1							
Leeds	1	2	1									
London	78	144	156	172	321							
London and Great Towns	207	304	332	442	783							
Newcastle-on-Tyne					1							
Stoke-on-Trent	4	18	7	9	1							
Greece: Patras	11	22	5	7	6							
Hedjaz	10	7		6	1							
Honduras: Choluteca												
India:												
Bombay	5,481	4,199	3,111	3,337	7,644							
Calcutta	1,418	954	661	730	1,093							
Cochin	31	37	16	12	42							
Karachi	31	34	11	8	14							
Madras	20	21	12	6	54							
Moulmein	4	13	13	4	30							
Nagapattam	16	27	10	2	37							
Panaji	7	16	3	1	7							
Pondicherry	89	82	79	58	64							
Rangoon	22	21	8	11	11							
Samarang	11	5	3	3	6							
Singapore	5	2	3	2	3							
Sourabaya	1	3	1	1	1							
Tientsin												
Yokohama												

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

[illegible]

Latvia (see table below).
Lithuania (see table below).

Mexico
Aguascalientes
Mexico City, including municipalities in Federal District.

Morocco
Palestine
Persia

Peru: Arequipa (see table below).

Poland
Portugal: Oporto.

Rumania
Tunisia

Turkey (see table below).
Union of South Africa:

Cape Province.
Natal
Orange Free State.

Transvaal
Yugoslavia (see table below).

Place	August, 1929	September, 1929	October, 1929	November, 1929	December, 1929	January, 1930	Place	August, 1929	September, 1929	October, 1929	November, 1929	December, 1929	January, 1930
Chosen: Seoul	C	1	1	3	1	1	Peru: Arequipa	D	3	1	1	2	2
Czechoslovakia	C	1	1	1	1	1	Turkey	C	4	10	2	4	2
France	C	1	1	1	1	1	Yugoslavia	C	7	1	1	6	18
Greece: Athens	C	6	3	7	2	2		C	2			1	2
Latvia	C	1	3	6	4	5		D					
Lithuania	C	7	1	1	1	1							

: Press reports show that 10 deaths from typhus fever occurred in Sao Paulo, Brazil, from Nov. 3 to 30, 1929.

YELLOW FEVER

Since August 1, 1929, the following cases of yellow fever have been reported: Nictcheroy, Brazil, 1 case; Rio de Janeiro, Brazil, 2 cases; Monrovia, Liberia, 1 case. All occurred during the month of September, 1929.